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ABSTRACT

This collection of papers includes: "Cheating: Ethics and Honor of High School Students" (Nick Bender); "Assessing Listening Proficiency in High School Spanish Classes" (Michelle Bennett); "Multiple Intelligences, Assessment and Achievement in Traditional High School Classes" (Kathryn Byrnes); "Who Wants To Be a Scientist? An Investigation of High School Student Attitudes Toward Science" (Amaris Carr); "Multimedia in High School English Classes and the Perceived Effects on Student Learning" (Mindi Fry); "Making Tracks: Honors and Standard Classes" (Elizabeth Godsey); "Teaching Spanish to Exceptional Children" (Shearon Green); "The Success of Teaching the Concepts of Evolution: The Effect of Concept Integration on End-of-Course Exam Scores" (Kathryn Horne); "Teachers' Perceptions on Teacher/Student Relationships in the Classroom" (Brenda Mock Kirkpatrick); "No Wrestling Allowed: Teaching Controversial Context in High School Social Studies" (Akwete McAlister); "How High School English Teachers Facilitate Classroom Discussion about Literature" (Melissa McCabe); "Is the Number of Heuristic Devices Employed by High School Students Related to Their Success in Answering Algorithmic and Concept Oriented Chemistry Problems?" (Jennifer McCluan); "Changes in Attitudes: Do a Student's Attitudes Concerning Chemistry Change After Exposure To Some Basic Chemistry Demonstrations?" (Janis McDonald); "Teacher Attitudes Toward Inclusion" (Elizabeth Miller); "Teaching Algebra: One Best System?" (Margo Muhr); "On Teaching Writing Well: Writing Instruction at the High School Level" (Julie Pederson); "High School Students' Attitudes Towards Math: Effect of Ethnicity, Gender and Parents' Education" (Darryl Piggott); "The Teaching of Culture in Secondary Level Spanish Classes: The Selection and Implementation of Cultural Topics" (Anne Salsbury); "Reader Response and Student Motivation" (Jill Snyder); "Social

Studies Teachers' Attitudes Toward End-of-Course Exams" (Nikolai Vitti); "Examining the Political Beliefs and Attitudes of High School Students" (Jennifer Watson); and "How Do High School English Teachers Use Different Levels of Questioning in the Classroom?" (Alison Winzeler). (Papers include references.) (SM)

Studies in Teaching 2000 Research Digest

Research Projects Presented at Annual Research Forum

WAKE FOREST UNIVERSITY

Wake Forest University
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Leah P. McCoy, Editor

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Cheating: Ethics and Honor of High School Students

by
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with
John Litcher, Ph.D. and Leah McCoy, Ed.D.

Wake Forest University
Department of Education
December, 2000

"The liar's punishment is not in the least that he is not believed, but that he cannot believe anyone else" -David DuBuisson, 2000

In recent years, cheating has been a growing problem among high school students. A 1998 national survey of high school teachers done by The American School Board Journal reports that nine out of ten teachers believe cheating is a problem in their schools (Bushweller, 1999). Also in 1998, the Josephson Institute of Ethics in California took a nationwide poll of high school students and reported that seven out of ten students admitted to having cheated on an exam (Goode, 1999). That same year, on a survey conducted by Who's Who Among American High School Students, 80% of the nation's best students admit to cheating on an exam and one out of every two students surveyed said cheating did not seem like a big deal. 95% of the students said they have never been caught (Reeves, 2000). Don McCabe, a Rutgers University professor that researches college cheating, is convinced that cheating is more pervasive now than ever (Bushweller, 1999). According to the Center of Academic Integrity at Duke University, the national figure of student cheating is between 75 and 98 percent (Reeves, 2000).

With the evidence revealing this rise in cheating in high school, many have questioned the students' beliefs in ethics and honor to find the answer as to why? The American Psychological Association said that the increased focus on grades as a determining factor is a major motivation for students to cheat (Reeves, 2000). The students seem very quick to point out factors that have affected their cheating habits. Many say they are desperate for better grades or offer excuses of being too tired or lazy to study harder (Bushweller, 1999). Many educators say the rise in cheating is due to, "an erosion of ethics in a self-centered culture" (Bushweller, 1999). Some point to habits evolved from working

in cooperative learning groups. Others blame teachers for not caring if the kids cheat or being too lazy to enforce their policies on cheating. Some blame has also been pointed at parents for refusing to hold their kids accountable. All of these seem like logical explanations.

Another major issue in cheating habits has been the increase in technology. Ready-made papers are offered on Internet web sites, cyber chat rooms are regularly crowded with kids trading papers and sharing homework. Some advanced calculators are used to save and store notes that can be viewed during the test without teachers knowing, and some miniature message pads can transfer messages from pad to pad through wireless beams. These devices are conveniently tiny to make it even more difficult for teachers. Kenneth Sahr, creator of the web site School Sucks, provides term papers and averages 80,000 hits a day on the site (Goode, 1999). The site does carry a disclaimer that the papers are to be used for research purpose only. But according to students in a focus group conducted by the Center for Public Interest Polling at Rutgers University and funded by a grant from Educational Testing Service, teachers are not familiar enough with technology, and they found it easy to plagiarize using the Internet (McCabe, 1999).

The purpose of this study was to examine cheating beliefs and behaviors of high school students today. The study searched for students' definitions of cheating. It explored what motivated students' cheating habits as well as factors and techniques for parents and teachers that may help to prevent cheating.

METHODOLOGY

This study began with two questions. How do students define cheating? What forms of cheating are considered more serious? Participants in the study were one hundred and forty-eight high school freshmen and sophomores selected from random Social Studies classes at two public high schools in North Carolina. The instrument used in obtaining data in this study was a student survey. The survey consisted of three identifying questions, ten multiple choice-ranking statements, twelve yes or no opinion statements, and one open-ended opinion question. A teacher in each of the two schools was selected to assist with the data collection. The survey was completed during class time and recollected by the teacher. The

results were then returned to the researcher for analysis. The data from the returned surveys was organized and analyzed by the researcher into descriptive statistics and frequencies.

RESULTS AND CONCLUSION

According to the students surveyed in this study, the most serious forms of cheating are copying during a test or exam and writing a report for someone (see Table 1). These results are not surprising because they are typically the two most discussed and punishable forms of cheating. The two have also gained popularity due to the standardized testing scandals and the use of the Internet for essays. A more common form of cheating that is prevalent in high schools today is copying someone else's homework and allowing someone to copy homework. This study shows that students do not believe sharing homework to be a serious form of cheating. One reason that students may not feel that sharing homework is a serious offense is that teachers and administrators do not stress it. If copying homework was more strictly monitored and had severe consequences that are regularly enforced, perhaps it would be taken more seriously. A more reassuring result shown by the study is the increased understanding of the seriousness of cheating on a test. Many students believed that it was a more serious offense to ask someone for a test answer. This survey concludes that students believe giving test answers is an offense that is just as serious.

Table 1. Students' Opinions of Seriousness

Category	Degree of Seriousness
Copying in Testing	4.44
Writing someone's report	4.35
Using notes in Test	4.09
asking for test answer	3.76
Giving test answer	3.66
Getting answers from prior tester	3.2
Copying Homework	2.03
Sharing your homework	1.98
Copying from board	1.42
Studying someone's notes	0.29

In compiling the percentage of the frequencies in the "Yes, No" section of the survey (See Table 2), the researcher was able to create a model of the typical high school student's beliefs. The typical high school student is not willing to cheat to get good grades, nor do they cheat because of not feeling as intelligent as other students. They know about the honor system at their school and believe cheating is wrong. They also believe that cheating is easier than studying and they are aware of the severity of the consequences for cheating in each classroom. They do not only cheat in classrooms where they are certain they can get away with it, but, if they respect or like a teacher they would be more reluctant to cheat in their classroom. The typical student does not believe that any subject is too impossible to get good grades in without cheating. They have never been caught cheating, but if caught and punished for cheating, they would be unlikely to cheat again.

Table 2. Students' Opinions

	%YES	%NO
To get good grades I am willing to cheat.	28	72
I'm not as smart so I have to cheat.	7	93
I know and follow the honor system.	67	33
Cheating is easier than studying.	54	46
Cheating is wrong.	90	10
I would never cheat.	32	68
I know the consequences of cheating.	92	8
I only cheat where I know I can get away with it.	34	66
If I respect a teacher I would not cheat in their class.	68	32
Some subjects are impossible to get good grades in without cheating.	24	76
I've been caught cheating.	20	80
I got punished for cheating but I still cheat.	10	90

A promising result in the frequencies was that students are less likely to cheat in a classroom if they like and respect the teacher. Sixty-eight percent said they would not cheat in a classroom where they respect the teacher. Perhaps the most interesting result of this survey is that the students' opinions as to how many students cheat in their schools (69.4%). According to the Center for Academic Integrity at Duke University, the current national figure is between 75-98 percent (Reeves, 2000). The belief of the students in these two high

schools puts their average 5.6 percent below the national average. However, this figure is much too high and should be an area of concern for parents and teachers.

REFERENCES

Boss, S. (2000). Is your child cheating? Good Housekeeping, 3(231), 170-171.

Bushweller, K. (1999). Student cheating: A morality moratorium? The Education Digest, 3,(65), 4-11.

DuBuisson, D. (2000). How to change the culture of cheating? "The liar's punishment is not in the least that he is not believed, but that he cannot believe anyone else." Greensboro News Record, H3, Greensboro, NC. Jun 4, 2000.

Goode, S. (1999). Students get A+ for easy cheating. Insight on the News, 35, (15), 18-19.

McCabe, D. (1999). Academic dishonesty among high school students. Adolescence, 136, (34), 681-687.

Stix, N. (2000). Scandal du jour rocks New York City schools. Insight on the News, 4, (16), 44-45.

Reeves, J. (2000). The cheat factor: Studies show most students have copied homework or glanced at a peer's test - and the problem seems to be getting rapidly worse. Morning Star, 1D, 5D, Wilmington, NC. Mar 6, 2000.

Assessing Listening Proficiency in High School Spanish Classes

by
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December, 2000

Introduction

Assessing foreign language aural proficiency is difficult considering that the tendency since the 1960s has been to equate language skill development with the development of oral skill development (Curtain and Pesola, 1994). Most resources available for foreign language programs are designed to place greater emphasis on reading, writing, and speaking than on listening comprehension (Harris and Jendrzejewski, 1988). Entire courses are designed to teach conversation, composition and literature exclusively with listening considered a by-product. It is assumed that aural skills receive their sufficient emphasis since students have to listen to and comprehend the instructor in class.

During the 1970s and 1980s, foreign language instruction emphasized teaching the skills of listening, speaking, reading, writing, and culture independently of one another. Each skill contained its own subset of goals and objectives. Grammatical competence was the focus with no overlap of skills and no true way to measure proficiency.

The development of the ACTFL Proficiency Guidelines (1986), which were designed to measure language performance in all language skills for adult learners, affirmed the importance of listening in the total curriculum. While the emphasis has been placed on proficiency for over a decade in K-12 foreign language programs, the American Council on the Teaching of Foreign Languages recently developed guidelines to assess developing K-12 learners in various sequences of study. The *ACTFL Performance Guidelines for K-12 Learners* were born from the notion that for years teachers set goals and defined outcomes to foster greater articulation; however, these goals often turned out to be nothing more than a list of topics to be covered (Hadley, 2001). These *Guidelines* coupled with the development of *Standards for Foreign Language Learning in the 21st Century* have impacted the shift

from separately taught foreign language skills to the integration of skills for meaningful language usage. This most recent movement in foreign language instruction strives to increase the learner's proficiency level and realizes that proficiency is not acquired by learning the elements of the language system first. Proficiency is developed through incorporation of the *Standards for Foreign Language Learning* (ACTFL, 1999), which intertwine and encompass the aforementioned skills in the areas of Communication, Cultures, Connections, Comparisons, Comparisons, and Communities. Using the *Guidelines*, teachers evaluate learners based on several factors including 1) comprehensibility, 2) comprehension, 3) language control, 4) vocabulary use, 5) communication strategy, and 6) cultural awareness. These factors are encompassed within the three modes of communication presented in the *Guidelines*: Interpersonal, Interpretive, and Presentational. Even with these overlapping goals to help students meet higher proficiency levels, listening comprehension remains one of the most difficult aspects to teach.

Review of the Literature

Current research reveals that time spent listening is directly related to the amount and level of oral proficiency acquired later. Also, listening prior to speaking leaves a period for comprehension to take place while allowing students to respond in a natural, more communicative manner (Curtain and Pesola, 1994).

Why is listening comprehension important in language acquisition? Listening occupies a greater percentage of our communicative time than any other language process. Joiner (1997) states that adults spend roughly 45 percent of their time listening and 11 to 16 percent reading, therefore suggesting that more than three-fifths of all communicative interaction involves comprehension skills.

Much of what is known about the listening process comes from first language research (Bacon, 1989). The infant is capable of processing significant amounts of language input long before speech is produced. The fact that one language has already been learned to an extent is presumed to impact the role of listening comprehension. Therefore, as much as possible, second language learning should echo the original language learning experience (Begley, 1996).

In the early 1980s, psycholinguists' theories such as Krashen's Monitor Model and Input Hypothesis Model brought attention to the need for listening to precede speaking and the

need to begin with either-or, one-word, yes-no answers prior to speaking. Krashen stressed the need for meaningful language input, just one step beyond the listener's processing capabilities (input +1) prior to speaking (Krashen, 1981). Krashen's models for second language acquisition led to the development of Asher's Total Physical Response (TPR) and Terrell's Natural Approach which supported Canale and Swain's (1980) development of a communicative competence framework based on output.

To develop aural proficiency, students should be continually engaged in frequently assessed communicative language practices. Listening exercises are more effective if they are constructed around a task. According to Dunkel (1986), three stages of listening strategy application, pre-listening, listening, post-listening, should be provided by language teachers to guide students through the process. Furthermore, according to schema theorists, listening tasks should be bi-directional in processing; that is, activities should include those that promote bottom-up processing and top-down processing. Of utmost importance in the development of proficiency is a classroom rich in target language communication. Constant use of the target language communicates the message that the new language is "adequate and appropriate for dealing with the ongoing communication needs of everyone in the classroom" (Curtain and Pesola, 1994, p. 107). Additionally, the target language must be used so that every message is clearly communicated through the use of gestures, illustrations, caretaker speech and experiences when students do not understand every word.

The purpose of this research study is to examine the approaches high school Spanish teachers use to teach and assess listening and to determine if they incorporate listening as an integral part of their instruction. The researcher also wants to determine if high school Spanish teachers are aware of the recommendations set forth in the *ACTFL Performance Guidelines for K-12 Learners* and if they use them in their instruction.

Methodology

The researcher developed a questionnaire, designed to ascertain specific teaching practices for developing and assessing listening proficiency, that was mailed to 34 high school Spanish teachers in Winston-Salem, North Carolina during the fall of 2000. Seventeen (50%) were returned completed. Responses were tabulated; descriptive and qualitative results were completed. Four respondents were observed on two occasions to examine how their teaching practices aligned with the responses to their questionnaire.

Results and Discussion

The results show that sixteen (94%) rate the importance of developing listening proficiency as important. Twelve (70%) use specific strategies that focus on listening. Fourteen (82%) use strategies to assess listening proficiency. Ten (59%) respondents stated that they are not familiar with the *ACTFL Proficiency Guidelines for K-12 Learners*. Of the eight who indicated familiarity with the *Guidelines* (one respondent marked "yes" and "no"), four (50%) indicated they do not use the guidelines to develop and assess proficiency from level to level. Nine (53%) participants responded "yes" and nine (53%) responded "no" when asked about the use of readiness activities such as pre-listening. Regarding frequency of listening activity use, forty-one (41%) percent indicated daily use, eighteen (18%) percent indicated weekly use, five (5%) percent indicated monthly use, and twenty-four percent indicated using listening activities more than once a week. Table 1 indicates the frequency use of methods used by teachers in the study to assess listening proficiency.

Table 1 – Frequency use of types of listening assessment

	1 Never	2	3	4 Very Often	5
Video	11%	23.5%	58.8%	5%	11.7%
Audiocassette	23.5%	17.6%	23.5%	29.4%	11.7%
Dictation	5%	17.6%	29.4%	29.4%	17.6%
Spanish music	11%	29.4%	29.4%	29.4%	0%
Graded listening Assessment	5%	11%	29.4%	41.1%	17.6%
Listening section on Test	29.4%	5%	17.6%	5%	41.1%
Formal listening assessment	17.6%	11%	29.4%	17.6%	23.6%

Teachers A, B and C used pre-listening, listening, and post-listening assessment during the observations conducted by the researcher. Teacher D conducted the majority of the Spanish I class in English; therefore, no listening assessment was observed.

Conclusion

Many teachers who participated in this study feel that the development of listening proficiency is important in foreign language instruction; however, most do not regularly incorporate listening assessment. Perhaps this trend exists because the majority of teachers are unaware of the most current standards for listening integration, which suggests a need for more professional development. Furthermore, it is imperative for school systems to recognize the need for an articulated K-12 foreign language curriculum because research shows that language acquisition for second languages is similar to first language acquisition; therefore, the earlier language instruction begins, the higher levels of proficiency students can attain.

Bibliography

ACTFL Proficiency Guidelines. (1986). New York: American Council on the Teaching of Foreign Languages, Inc.

Bacon, S.M. (1989). Listening for real in the foreign-language classroom. Foreign Language Annals, 22(6), 543-550.

Begley, S. (1996). Your child's brain. Newsweek, February 19, 55-61.

Canale, M and M. Swain (1980) Theoretical bases of communicative approaches to second language teaching and testing. Applied Linguistics 1, 1-47.

Hadley, A.O. (2001). Teaching Language in Context. (3rd ed.). Boston: Heinle-Heinle.

Harris, M. and J. Jendrzejewski (1988). Planning and teaching for listening proficiency. (ED 337011).

Joiner, E. (1997). Teaching listening: How technology can help. In M. Bush (ed) Technology-Enhanced Learning (p. 77-120), Lincolnwood, Illinois: National Textbook Company.

Standards for Foreign Language Learning: Preparing for the 21st Century. (2000) Lawrence, Kansas: Allen Press, Inc.

Multiple Intelligences, Assessment and Achievement

in Traditional High School Classes

by
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December, 2000

School curriculum is designed to transfer the skills valued in the society (Gardner, "Reflection", 1995). Standardized testing reflects the knowledge, skills and values states expect students to master during their educational experience. Recently, states like North Carolina have expanded the importance of testing to measure the quality of curriculum and teaching throughout the state. North Carolina's end-of-course (EOC) testing system serves as a measure of accountability for the quality of education counties, schools and teachers offer students and parents. The end-of-course tests influence curriculum, teaching strategies and the learning experience of students.

The effectiveness of the standardized testing system continues to be debated by educators, policy makers, parents and students. Those who critique the tests argue that they inhibit teachers' flexibility and strategies in the classroom and expand the breadth of students' studies but limit the depth. Howard Gardner, the designer of the multiple intelligence (MI) theory, proposes that schools and standardized tests measure only two out of eight possible intelligences possessed by all students. The schools and the tests like the EOC or the SAT do not accurately measure students' knowledge because they only assess the linguistic and logical/mathematical intelligence. "When it comes to assessment, education needs to make it clear that merely taking a temperature over and over again does not heal a patient and that a person who can spit back facts cannot be expected to solve an unfamiliar problem or create something new" (Gardner, MI, 1993). The intelligences not measured by standardized tests and absent from schools' curriculum are musical, kinesthetic, spatial, interpersonal, intrapersonal and naturalistic.

Review of Literature

Gardner's groundbreaking book Frames of Mind: The Theory of Multiple Intelligences, explains the seven intelligences he proposed at that time. Verbal/linguistic intelligence encompasses both written and spoken words and language and all elements associated with language. Logical/mathematical intelligence controls reasoning, inductive and deductive thinking, the manipulations of numbers and the recognizing of abstract patterns and designs. Musical intelligence regulates knowledge concerning rhythm, beats and tones. Bodily/kinesthetic intelligence relates to movement and control of one's body as well as knowledge regarding the workings of the body. Spatial intelligence depends upon a sense of sight and mental visualizations. Intrapersonal intelligence relates to a person's self-reflection and identification of who they are. It also involves metacognition or thinking about thinking. Interpersonal intelligence is evident through personal interactions with other people and includes knowledge about communication, the behavior and feelings of others and the motivations contributing to those behaviors and feelings (Gardner, Frames, 1983). Gardner has recently promoted the eighth intelligence, naturalistic. In an interview with Ronnie Durie, Gardner explained the naturalist intelligence as "the human ability to recognize plants, animals and other parts of the natural environment, like clouds or rocks" (Durie, 1998, p1).

Gardner's multiple intelligence theory postulates that every person possesses all eight intelligences to differing degrees. Most people are strong in one or two and weak in the six others because their family, their education, or other experiences did not reinforce the other intelligences. When schools focus on only linguistic and mathematical intelligence, the community loses some part of the potential each student possesses to contribute to society. "Think about the enormous human potential currently wasted in a society that values only a small subset of human talents" (Gardner, MI, 1993, p183).

Many teachers support Gardner and insist that true understanding and genuine learning require the interaction of multiple intelligences (Nicholson-Nelson, 1999). The fact that most teachers do not incorporate MI theory within their classrooms might reflect the influence curriculum and testing has on the freedom of teachers. Other educators and researchers concur with Gardner's proposition that schools and standardized tests only measure linguistic and logical/mathematical intelligence and they therefore limit the

intellectual potential of every student (Armstrong, 1994, 1996, 1998; Campbell & Campbell, 1999; Emig, 1997; Hoerr, 1996; Lazear, 1992). "Education is not only accountable for improving academic achievement but also for the developing the multifaceted potential within each of us" (Campbell & Campbell, 1999).

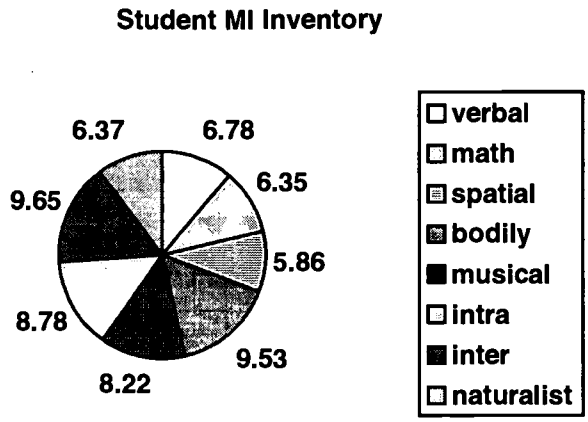
MI theory suggests that the majority of schools in this country do not adequately meet the needs of their diverse students (Snyder, 2000). MI theory also implies that those students who succeed in school possess the two intelligences, linguistic and mathematical, that are reinforced throughout the curriculum and the testing system. This study was designed to address the issue of multiple intelligences, assessment and achievement. Do students with multiple intelligences feel more successful in school and enjoy school?

Methodology

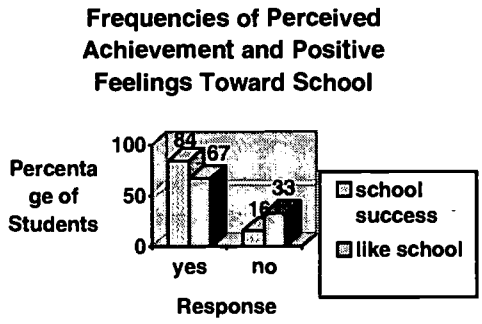
One hundred junior and senior high school students enrolled in a Psychology class at a North Carolina public high school participated in the study. The materials utilized in the study included a multiple intelligence inventory to assess students' strengths and weaknesses in the area of multiple intelligence, a survey designed by the researcher asking questions about their intelligence strengths and weaknesses, the methods used to assess their knowledge in their traditional subjects of math, English, history and science, and their success in the four traditional classes, an MI profile wheel and a paper describing characteristics of each intelligence.

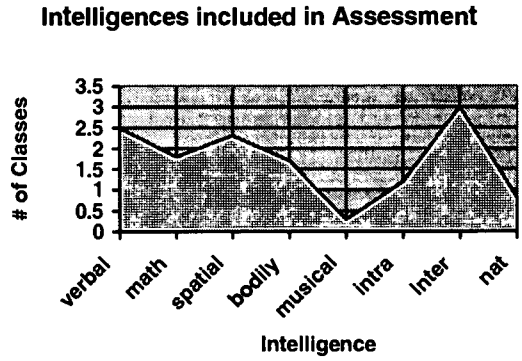
Results and Conclusions

Analysis of student inventories revealed that students possessed all eight intelligences supporting Gardner's hypothesis that people possess all eight intelligences to differing degrees. The inventories also demonstrated that a large majority of high school students are strong in bodily-kinesthetic, musical, intrapersonal and interpersonal intelligence.
The interpersonal strength possibly reflects students' preoccupation with their friends and their egos concern with how they are viewed by their peers. The level of confidence exhibited in students' personal knowledge and understanding of themselves may indicate their maturity as juniors and seniors. The strength of bodily-kinesthetic and musical intelligence may reflect the emphasis placed on extracurricular activities at the high school level and the need for students to feel be a part of an organization and feel successful outside of the classroom.



A comparison of students' feelings of success with students positive attitude toward school demonstrate that between 65% to 85% students feel successful in school and enjoy school. These results oppose the typical teenage attitude of anti-school. The students who participated in this study may enjoy and feel successful in school because of the support they receive from their parents and teachers. Another factor could be the wider use of multiple ways of assessing which allows more students to feel successful. Students indicated that in at least half of their English, Math, Science and Social Studies classes, teachers utilized verbal, spatial and interpersonal intelligences in their assessment strategies. The least used intelligences were musical and naturalist.





More research in this area should include observations and interviews with students and teachers to investigate the relationship between multiple intelligences and feelings of success in high school and the relationship between feelings of success and positive feelings about school. The students were a select sample and do not represent the population but their

responses indicate the prevalence of multiple intelligences in their lives. Their inventories and their profiles reveal that they possess strengths in multiple areas. Further research may explore the hypothesis that the "most intelligent" students or the "most successful" students demonstrate strengths in more intelligences than their peers, which contributes, to their success.

References

Armstrong, T. (1994). Multiple intelligences: Seven ways to approach curriculum. [Accessed from http://www.thomasarmstrong.com/articles/7_ways.htm on September 4, 2000.]

Armstrong, T. (1996). Utopian Schools. [Accessed from http://www.thomasarmstrong.com/articles/utopian_schools.htm on September 4, 2000.]

Armstrong, T. (1998). Multiple intelligences [Accessed from http://www.thomasarmstrong.com/multiple_intelligences.htm on September 4, 2000.]

Campbell, L. & Campbell B. (1999). Multiple intelligences and student achievement: Success stories from six schools. Alexandria, VA: Association for Supervision & Curriculum Development.

Durie, R. (1998). An Interview with Howard Gardner. [Accessed from http://www.newhorizons.org/trm_duriemi.html on November 1, 2000.]

Emig, V.B. (1997). A multiple intelligences inventory. Educational Leadership, 55, 47.

Gardner, H. (1993). Multiple intelligences: The theory in practice. NY: Basic Books Inc.

Gardner, H. (1983). Frames of Mind. NY: Basic Books, Inc.

Gardner, H. (1995). Reflections on multiple intelligences: Myths and messages. Phi Delta Kappan, 77, p 200-208.

Hoerr, T.R. (1996). Implementing multiple intelligences: The new city school experience. Bloomington, IN: Phi Delta Kappa Educational Foundation.

Lazear, D.G. (1992). Teaching for Multiple Intelligences. Bloomington, IN: Phi Delta Kappa Educational Foundation.

Nicholson-Nelson, K. (1999). Let 100 flowers bloom. Instructor, 109, p32.

Snyder, R.F. (2000). The relationship between learning styles/multiple intelligences and academic achievement of high school students. High School Journal, 83, p11-21.

Who Wants to be a Scientist?
An Investigation of High School Student Attitudes towards Science

by
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December, 2000

Introduction

As we consider the progression of science and its importance to our society, we must continually take an interest in giving opportunities to and fostering the minds of those who may serve as great scientific resources. Unfortunately, the culture of the scientific community has not always been encouraging to diversity. To counter this tradition of exclusivity, intervention programs have been designed and implemented.

This study is designed to determine students' attitudes towards science, particularly those of girls and minorities. Much attention has been given to the well documented under-representation of women and minorities in the sciences. Numerous efforts have been conducted in the past by science educators to encourage participation by these groups. However, the gap has not been closed to the satisfaction of those who study the participation of minorities in the sciences. This research effort is intended to gain a better understanding of students' attitudes as a means of more effective planning in such efforts.

Review of Literature

Science has always been an integral part of the progression of not only this country, but also the world. With such an importance, it is imperative that all that have the potential to contribute are afforded the opportunity and encouraged to do so. The United States has a strong dependency on scientific achievement, and requires continuous study and applications of advances in the scientific community. In consideration of the future of our country, Bailey (1990) has referred to this issue as "imperative for national survival and world competitiveness" (p. 241).

The under-representation of women and minorities in the sciences is well documented, and has been continuously investigated as a major area of study (Mason & Kahle, 1988). In 1989, only 50% of inner-city minority students elected to take mathematics courses beyond the required basics (Bailey, 1990). Although the numbers have increased since then, there is still a clear differential enrollment in advanced, elective science, and mathematics courses for female and minority students compared to white male students (Terry, 1997). Researchers believe that it is this lack of preparation preventing female and minority students from pursuing further study in the sciences and seeking science related careers (Terry, 1997).

Mason and Kahle (1988) used an intervention technique in their study, and found positive results. Their approach was to conduct presentations that highlighted the fun that one can experience in science. Not only was it effective for the female students, but the male students also experienced a significant positive effect on their attitudes as a result of the program. Many such independent programs have continued to be employed, and have had similar results. The number of female students participating in science and pursuing science-related careers has definitely increased, yet the gap between female and male students still exists (Cronin &Roger, 1999). The gap has narrowed, but it remains. Due to the principles and ideas behind Title IX, many doors have been opened for different programs to continually be designed. The argument ensues that the gap has been closed, while others believe that most intervention programs have not been as effective as intended (Streitmatter, 1998). The issue of creating effective intervention programs must be addressed. This research project is intended to begin an investigation into just that idea.

Much focus has been on the "survivors" (Mason & Kahle, 1988). "Survivors" are defined here as those who have found academic and professional success in the sciences. However, considering those who are interested but don't continue in further study, the survivors can't really provide useful information. After all, they are survivors. It is important to remember, as noted by Mason and Kahle, that the poor attitudes are less likely because of the content of the science classes, but, rather, because of the presentation of the content. Educators must take ownership of this shortcoming and adopt the perspective of making the culture of science inviting to the under-represented

students, as opposed to trying to make the students fit into the existing culture of science (Cronin & Roger, 1999). Finally, effective intervention programs should be inclusive of all students. There should be efforts made to encourage the under-represented as well as efforts made to maintain the sufficiently represented (Terry, 1997).

The goal of this research project is to further investigate these attitudes for more successful design of intervention programs.

Methodology

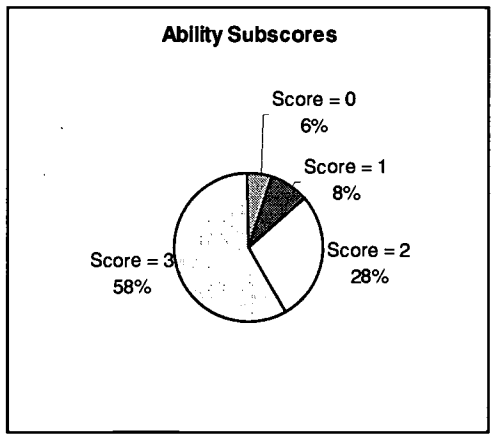
The participants in this study were all of the Honors Biology students and one class of Earth Science students at a North Carolina Public High School. Approximately 115 students were solicited, although only 36 returned signed consent forms. A survey was distributed as a means of collecting the data related to student attitudes. The opportunity for all students to participate was made available, but it was also made clear that their participation would be anonymous and was strictly on a voluntary basis.

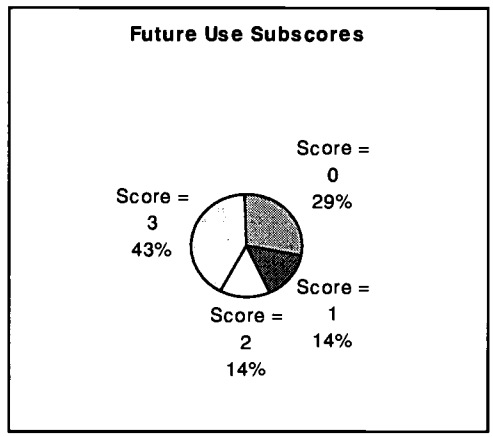
Results and Conclusions

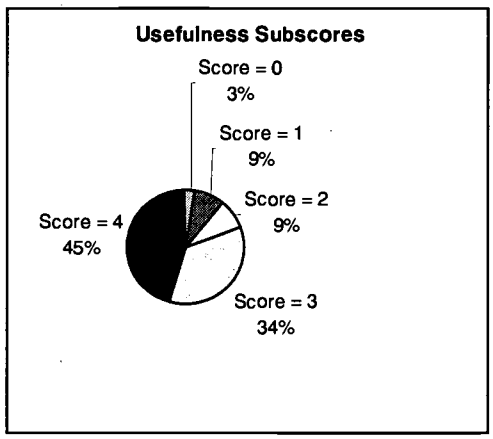
For meaningful results, the data was analyzed in terms of sub-scores and total scores. The sub-score groups were ability, future use, usefulness, enjoyment, and gender relative ability. Following the discussion on the results of each sub-score and the total score are graphical representations of the data analysis.

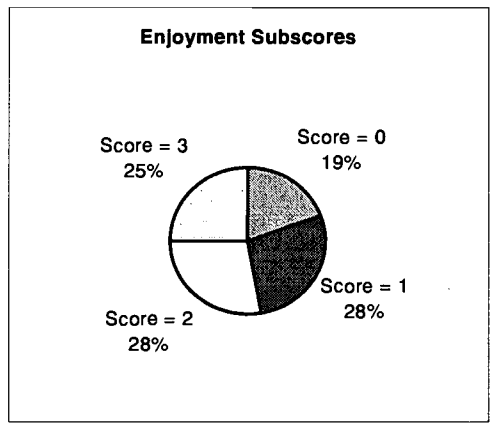
A clear majority of the students surveyed believed in their own ability to do well in science. The least number of students scored the most negative score. For the future use sub-score, the majority of the students either definitely believed that they would use science in their futures or they believed that they absolutely would not. There was an overwhelming positive opinion on behalf of the students as it relates to the usefulness of science. These questions targeted the value that students put into learning science. It is statistically significant to speak of the enjoyment sub-score results as being equally distributed. As many students who scored the most positive scores scored the most negative scores. The gender relative ability sub-score examined the students' opinions on which gender has more ability in science. If the students felt that either sex was better than the other was, they received a score of a one. A clear and significant majority of the students do not believe that either gender has more ability than the other. The total scores ranged from a minimum of four to a maximum of fifteen. Half of the students fell in the

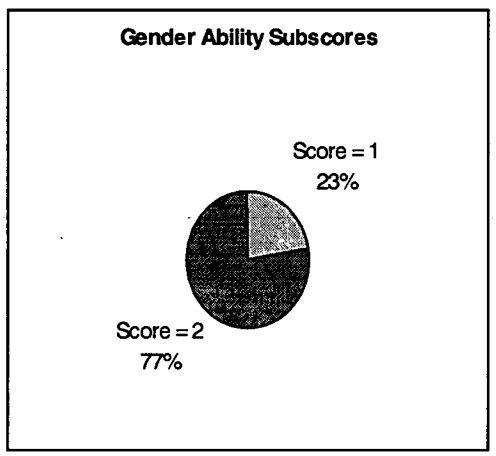
range of 11-14. This indicates that overall, the students have a relatively positive attitude towards science.

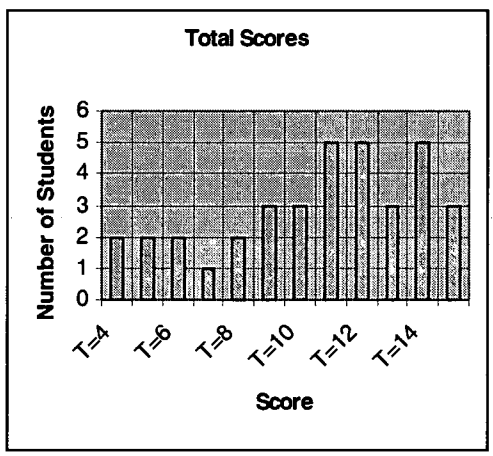












The most interesting data found in this investigation is the relatively equal distribution of the students' opinion on their enjoyment of science. If an intervention

program was based on these results, the focus of the structure should clearly be on making the science enjoyable for the students. The students surveyed have positive attitudes towards their own ability, their future use of science, the usefulness of science, and relative gender ability. Making the science fun appears to be an area where efforts could be made that may be impactful on increasing the positivity of students' attitudes towards science.

References

Bailey, R. (1990). Mathematics for the millions, science for the people: comments on black students and the mathematics, science, and technology pipeline. Journal of Negro Education, 59 (3), 239-245.

Cronin, C. & Roger, A. (1999). Theorizing progress: women in science, engineering, and technology in higher education. Journal of Research in Science Teaching, 36 (6), 637-661.

Mason, C.L. & Kahle, J.B. (1988). Student attitudes toward science and science related careers: a program designed to promote a stimulating gender-free learning environment. Journal of Research in Science Teaching, 26(1), 25-39.

Streitmatter, J. (1998). Single-sex classes: female physics students state their case. School Science and Mathematics, 98 (7), 369-375.

Terry, J.M. (1997). What factors affect attitudes toward women in science held by high school biology students? School Science and Mathematics, 97 (2), 78-85.

Multimedia in High School English Classes and the Perceived Effects on Student Learning

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Introduction

With the ever-expanding technological advances made over the last decade, students are currently entering classrooms experienced in computers and interactive media. In this multimedia-rich age, teachers must incorporate technology into their lesson plans to enrich the learning experience for students. By doing so, they are more likely to reach more types of learners in lessons that engage and invoke curiosity.

This study investigates the ways in which four English teachers--teaching ninth through twelfth grades--use multimedia in their classes. The goal of this study is to examine the variety of methods for integrating multimedia (computers, VCRs and video cameras, projection devices, print media, audiotapes, and cameras) into lesson plans in the teaching of high school English. The purpose of this investigation seeks an answer to the question, "How is multimedia used in high school English classes, and what are the perceived effects on student learning?"

Review of Literature

The role of the English teacher in the age of technology is shifting, as many more students enter school armed with technology knowledge. Kinzer and Leu (1997) suggest that teachers will act as guides, "presenting potentially richer and more integrated learning opportunities for both teachers and students" (p. 126). These "richer learning opportunities" in the English class will center on engaging students in the basic skills of writing, grammar, and reading, but in a new fashion that promotes the use of "transferable skills for their [the students'] futures in college and the workplace" (Civello, 1999, p. 91). How teachers maneuver themselves in the wake of these changes will determine their students' integration

into the "twenty-first century" where "learning...will be increasingly bound up with work and everyday life. It will be required on demand and will be organized in such a way that it fits the lifestyle and needs of individuals" (Bates, 2000, p. 40). Indeed, teachers will have to juggle traditional skills with the fast-paced advancements made in the realm of multimedia educational tools.

While many teachers may embrace new technology and their new roles as guides, others may be reluctant to let go of the more comfortable, traditional methods of teaching that have served them for years. Moreover, as Barrell (1999) suggests, "nothing less than a paradigm shift in their thinking is in order," (p.235). For these more reluctant teachers, the problem lies not only with the generation gap. "Most writing teachers," argues Sorapure, Inglesby, and Yatchisin (1998), "have notoriously little time and meager institutional support to become experts in this area [technology], and the rewards of such expertise are as yet uncertain" (p. 411). Thus, a gap is forming between teachers who incorporate multimedia into their lessons and those who use it seldom or never.

Teachers who do spend time acquainting themselves with technology have found ways to bridge "traditional" English skills with newer methods of teaching within a multimedia framework. As a study conducted by Lapp, Flood, and Fisher (1999) found, "Building on the natural curiosity and interests of children, multiple media formats capture attention, reinforce content knowledge, and increase aesthetic responses" (p. 780). As an example, one teacher discovered that students could read the contents of a search page on the Internet in much the same way as students in the past read the index of a reference book (Patterson, 1999, p. 71). In addition, structuring multimedia, whether linearly through the use of a CD-ROM or Web site, algorithmically, or problem-based, creates learning situations that are customized to each student's needs (Bates, 2000, 42). Lastly, computer-based concept mapping-- "hierarchical representations of concepts and propositions that reflect both the *content* and the *structure* of a person's knowledge in a given domain"--are enabling teachers to gauge student progress and fill in the missing learning gaps more accurately (Anderson-Inman and Ditson, 1999, p. 7). By meshing multimedia within the curriculum, it seems teachers have realized that there are many benefits to be gained.

The benefits of multimedia integration within the classroom are bringing more and more success stories to light. The Kids at the Wheel program in P.S. 92 in Harlem, New

York, combines an accessible, technological learning environment with an historical multimedia project. Don Nix, an IBM researcher for the project, states, "Observations indicate that students are reading more, comprehending what they read better, and working more independently. They also work better in teams and have proven to themselves and others that they can analyze and evaluate complex information" (Milone, 1996, p. 27). It seems that there is much to be gained from an environment rich in multimedia resources and support, where learning is active. In addition, an active learning environment, one in which engagement is almost inevitable, most closely resembles the real-world situations that students will face when they graduate.

It seems that true learning is empowering students to think for themselves, and multimedia is becoming the choice vehicle for this student empowerment. A study by Liu and Rutledge (1997) discovered that at-risk students who designed their own multimedia programs for real audiences--similar to the Kids at the Wheel program mentioned above--"showed significant growth in their value of intrinsic goals" and "acquire[d] several critical design skills" (145). Perhaps the most important gain observed in this study was the "transition" students made "from receivers of knowledge to authors of knowledge" (147). The authorship that comes from working *with* multimedia seems to have a powerful impact on learning, and this should usher in a host of possibilities for creative teachers.

In conclusion, English teachers have an enormous amount of choice about how they integrate multimedia into their lesson plans. The particular software, print, film, or music may change from class to class across the country; this is what makes the teaching profession so innovative and creative. What does not change is the positive impact multimedia seems to be having on student learning.

Methodology

The subjects in this study are four English teachers representing ninth through twelfth grades. The analysis describes information in a confidential manner, presenting references to teachers as simply Teacher A, Teacher B, etc.

A series of observations was used for the data collection. Observations took place in the natural environment of each teacher's classroom over the course of the fall semester. Each of the four teachers was observed nine periods each, allowing for consistency in data collection.

The observational data was used to gauge in what respect (what ways and for what reasons) these four teachers incorporated various multimedia technologies into their classrooms. Narrative data is used to describe the four teachers' approaches to incorporating technology into their classrooms and the perceived effects upon students.

Results and Conclusions

In conclusion, all four of the observed English teachers seem to have found ways to engage their students in the curriculum with supplemental multimedia devices. Computers were the most common multimedia used by these four teachers, being used most often as reinforcement to writing assignments by creating high standards for student output in final drafts. Following close behind computers, projection devices such as the traditional overhead projector and the newer TVator seemed to stimulate student responses and create a communal sense of learning. They seem to lighten the amount of material teachers must write, since they can reuse slides year after year, and students seem to benefit from the larger font size and immediacy of these devices. Print media--from newspapers to postcards--seems to increase aesthetic response in students by stimulating attention to supplemental visuals and increasing listening skills. Video equipment such as VCRs and camcorders are also integrated fairly often as introductory or supplemental material to a lesson, and the use of these devices seems to generate interest if the students relate personally to a movie, for instance. Cameras and scanners seem to increase student autonomy when used in a relevant manner, such as in a journalism class setting. Finally, audiocassettes seem to effectively stimulate student interest in the midst of reading by engaging them in traditional oral listening skills.

Thus, teachers seem to have successfully found a way to bridge traditional skills with modern scenarios, giving students relevant frameworks from which to impart deeper meanings. The implications for students appear to be positive, since students are being required to integrate traditional skills with multimedia devices. This ability to communicate effectively using 21st century learning tools will undoubtedly benefit all students entering the workforce of today--whether they attend college en route to the job market or not. Therefore, the English curriculum seems to embrace rather than clash with multimedia, as teachers integrate both to create schools of active learners, prepared for the 21st century.

References

Anderson-Inman, L., & Ditson, L. (1999). Computer-based concept mapping: A tool for negotiating meaning. *Learning and Leading with Technology*, *26*(8), 6-12.

Barrell, B. (1999). Technology and change in Atlantic Canada's new secondary English language arts curriculum. *English Education*, *31*(3), 231-54.

Bates, T. (2000). Teaching, learning, and the impact of multimedia technologies. *Educause*, *5* (1), 38-43.

Civello, C.A. (1999). "Move over, please": The decentralization of the teacher in the computer-based classroom. *English Journal*, *88*(4), 89-94.

Kinzer, C., & Leu, D.J. (1997). The challenge of change: Exploring literacy and learning in electronic environments. *Language Arts*, *74*(2), 126-36.

Lapp, D., Flood, J., & Fisher, D. (1999). Intermediality: How the use of multiple media enhances learning. *Reading Teacher, 52*(7), 776-80.

Liu, M., & Rutledge, K. (1997). The effect of a "learner as multimedia designer" environment on at-risk high school students' motivation and learning of design knowledge. *Journal of Educational Computing Research, 16*(2), 145-77.

Milone, M.N., Jr. (1996). Kids as multimedia authors. *Technology and Learning*, *16*(2), 22, 24, 27-28.

Patterson, N.G. (1999). Making connections: Hypertext and research in a middle school classroom. *English Journal*, *89*(1), 69-73.

Sorapure, M., Inglesby, P., & Yatchisin, G. (1998). Web literacy: Challenges and opportunities for research in a new medium. *Computers and Composition*, *15*, 409-424.

Making Tracks: Honors and Standard Classes

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Introduction

In classrooms across the country students are asked to push themselves and to challenge their minds. Their teachers are asked to provide the motivation for the challenge. Some students are more equipped to face and overcome the challenges set before them and are therefore placed in a more advanced learning environment. The purpose of this study is to discover if these students are given an advantage over their peers. What are the differences between honors classes and standard classes as far as teaching methods are concerned?

Review of Literature

Several studies have been conducted trying to discover whether or not these divisions are beneficial for the students involved. McDermott's (1995) study "Should We Do it the Same Way?" examined four social-studies teachers and four science teachers in the 1995-96 school year. Each teacher taught both tracked (honors) and detracked (standard) classes. The objective of the study was to discover the differences in the classrooms especially if one was advantageous over the other. He found that both the teachers and the students shared a preference for cooperative learning and that the detracked classes offered that specific type of environment. He also found that no evidence existed to prove that a tracked class produced better results. The class achievements on the end of the year exams were very similar. McDermott's recommendation at the end of his study was for teachers to become more flexible and better prepared to teach a classroom with a wide variety of student ability and interest.

Oakes (1980) sought to specifically find whether or not a homogenous classroom setting provided different curricular content, instructional practices, and social interactions at separate track levels in a high school's English and language arts classrooms. She concluded

that tracking does in fact produce a negative outcome in that it adheres to society's existing social structure. She found that teachers who taught the upper level tracks had greater enthusiasm and provided clearer presentations than did their counterparts in lower tracked classes. Another study conducted by Ireson, Hallam, Mortimore, Hack and Clark (1998) found the same type of evidence. They state, "Research to date indicates that pupils in the low streams are disadvantaged in several ways. Teachers generally prefer to teach the high ability groups . . . and spend more time in preparation of lessons for them." (p. 4). (Direct quote) However, in research directed by Butin (1999) it was found that while detracking may be necessary it still was not sufficient in providing an equal education and achievement level (p. 17).

Lisa Tsui's article "Courses and Instruction Affecting Critical Thinking" (1999) studied how different courses and instructional techniques affect college student's self-reported growth in critical thinking. She asked the students in a questionnaire format to relay their perceptions of their own ability in critical thinking. Most of the students responded that by enrolling in honors classes as well as in a wide variety of subjects (i.e.- math, foreign language, creative writing, ethnic studies, etc.) they expanded their ability at critical thinking. Tsui concludes that taking varied courses as well as enrolling in honors programs provides a greater learning environment and therefore heightens critical thinking.

A program instituted in the San Diego area called the Achievement via Individual Determination (AVID) took students whose performances in previous school years were rated as low achieving and placed them into a high achieving, college-bound environment. The study lasted for three years. In the end 48% of the previously low achieving students went on to four-year colleges while 40% enrolled in two-year colleges and the remaining 12% found jobs, traveled, or worked in voluntary jobs. The conclusion of the study was that it was the educational environment that influenced the students to learn and to achieve. It took dedicated teachers who were willing to work with problematic students to show the students what they were capable of accomplishing.

Methodology

Subjects

The researcher observed three social studies teachers in the Winston-Salem Forsyth County district. These teachers each taught both standard and honors classes. Six classes were observed, three honors and three standard.

Measures and Procedures

In order to collect data a tally sheet was used. It consisted of three sections: methods used, learning styles, and questioning. Methods include lecture, discussion, questioning, projects, seminar, computer use, student presentation, reading, video, role playing, debate, and a slot for other methods. Learning styles refers to the method used and how it appeals to visual, auditory, and experiential learning styles of students. Each student has a specific way of learning, so including this section allowed the researcher to discover if the teachers were meeting the varying needs of their classes. Finally, a questioning section was included to rate the amount of questions asked in each class. A distinction was made between high and low order questions in order to trace the types of questions asked in each class.

The tally sheet was separated into ten 5-minute increments in order to keep track of how often each method, learning style and questioning was used.

Analysis

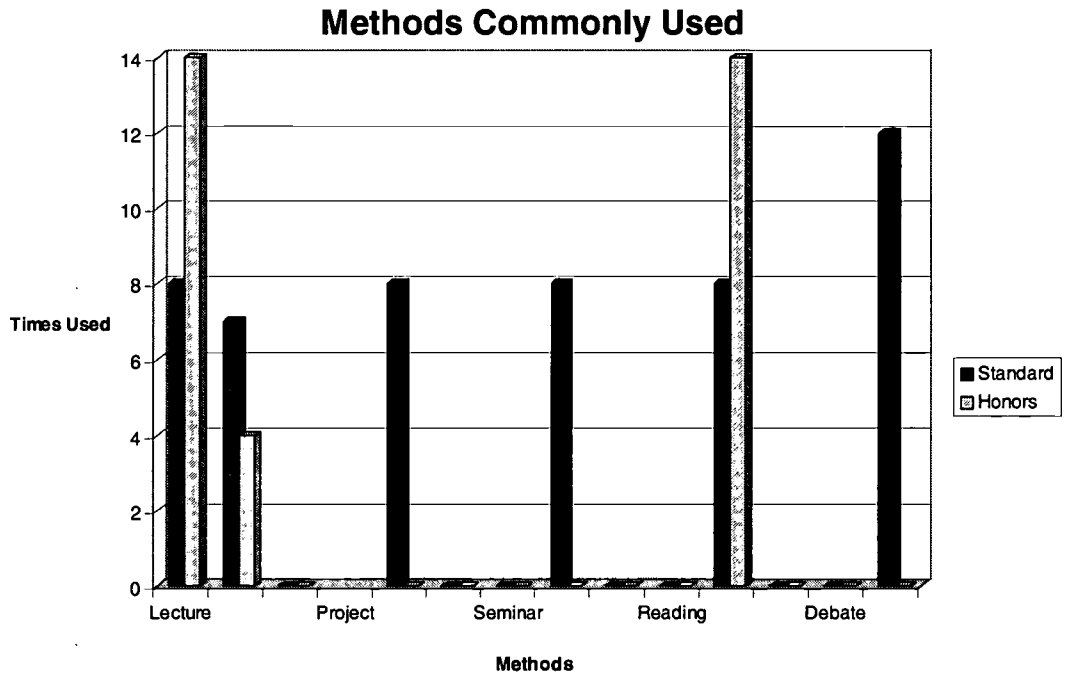
In order to synthesize the data collected during the observations several charts and graphs were utilized. A bar graph was used to compare the methods commonly used in the classrooms. A pie graph compares the learning styles addressed in each class and another bar graph was used to demonstrate questioning.

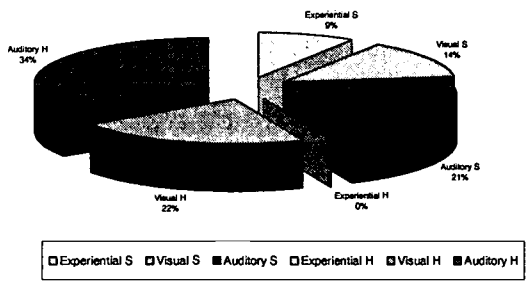
Results and Conclusions

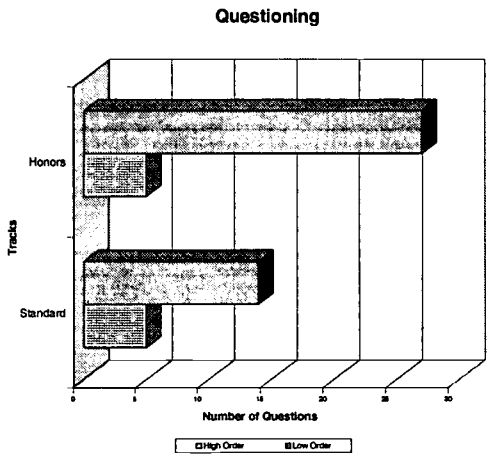
After observing these classrooms the results were not surprising. Differences do exist between the two tracks. For instance in the graph displaying methods commonly used one can see that lecture is one of the main methods used for honors classes. Also on this graph it is visible that the bar depicting 'other' is the common method for standard classes. The 'other' method was an individual assignment.

Looking at the learning styles pie graph one can see that the students in the honors tracked classes were exposed to methods dealing with more auditory and visual learning styles. The standard classes were exposed to evenly distributed lesson plans. All three learning styles were accommodated.

In the questioning bar graph it is obvious that the honors classes were questioned more than the standard classes. But if one considers the type of questions that were asked he or she would find that both honors and standard classes were asked the same amount of high order questions.







The results are not surprising, but they are also not conclusive. Only three teachers and six classes were observed. In order to have a more definitive conclusion a much larger study needs to be done. This project does provides a good perspective on the controversy surrounding this issue.

References

Butin, DW. 1999. Exclusionary practices and detracked learning environments: a case study. (ERIC Document Reproduction Service No. ED 433387)

Ireson, J., Hallam, S., Mortimore, P., Hack, S., Clark, H. Ability grouping in schools: an analysis of effects. Montreal, Canada: Annual meeting of the North American Educational Research Association (April 19-23, 1999). (ERIC Document Reproduction Service No. ED 430989)

McDermott, P. 1995. Should We Do it the Same Way?: Teaching in Tracked and Untracked High School Classes. Portsmouth, NH: Annual Meeting of the Northeastern Educational Research Association (October 25-27, 1995). (ERIC Document Reproduction Service No. ED 393170)

Mehan, H. 1994. Tracking Untracking: the consequences of placing low track students in high track classes. (ERIC Document Reproduction Service No. ED 379368)

Oakes, J. 1980. Tracking and inequality within schools: findings from a study of schooling. (ERIC Document Reproduction Service No. ED 187814)

Tsui, L. 1999. "Courses and Instruction Affecting Critical Thinking." Research in Higher Education, 40, 185-200.

Teaching Spanish to Students with Learning Disabilities

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Introduction

The average student can be both challenged and frustrated by school, but students with learning disabilities struggle even more to keep up with teachers' expectations. The study of foreign languages constantly challenges these students. Some students with learning disabilities seek exemption from studying foreign languages, although research shows that learning a foreign language can actually help these students acquire native language acquisition skills if instruction is approached in the right way (Schneider, 1996; Scott, 2000; Sparks & Ganschow, 1991).

Despite students' hardships with studying a foreign language, they acquire significant benefits that increase their knowledge and understanding of the world around them. In addition to language learning, foreign languages connect to larger concepts including personal awareness, civic responsibility and career opportunities (Curtain & Pesola, 1994). While many universities are starting to require foreign language experience for admission consideration, certain groups of students continue to struggle and even to fail the language requirements (Barr, 1993; Schneider, 1996). Students with learning disabilities often have a more difficult time mastering a foreign language (Ganschow et al., 1991), and are incorrectly labeled as unmotivated or helpless (Clark, 1997). Because teachers are important resources of information about a student's progress in school, they should be knowledgeable about learning disabilities in order to be able to address diverse needs effectively in the classroom (Berman, N., 2000).

Review of Literature

Although studies have shown that there is no relationship between Intelligence Quotient and one's ability to learn a foreign language (Sparks & Ganschow, 1991), students often equate achievement with ability, which in turn shapes how they feel about studying a particular subject (Morvitz, 1992). This can be especially damaging for students with

learning disabilities who are more apt to struggle with learning foreign languages. Javorsky (1996) and Sparks and Ganschow (1991) agree that students who have trouble with their native language will likely find foreign languages equally challenging. Students with difficulties in oral and/or written activities in their native language reflect the same difficulties in learning a foreign language (Ganschow et al., 1991). Research finds that " . . .phonological difficulties . . .and orthographic difficulties . . . have the most immediate and severe impact on foreign language learning" (Scott & Manglitz, 2000, p.1).

According to Sparks and Ganschow (1991), three major factors contribute to mastering a foreign language: verbal intelligence, motivation for learning the language, and auditory ability. Verbal intelligence is based on one's ability to recognize and manipulate words in one's native language. Auditory ability allows one to differentiate between sounds and symbols that produce sounds. Both of these are reflected in native language ability and can help or hinder the foreign language student. Disabilities relating to these areas of language will inevitably resurface in the second language.

While most foreign language teachers are not specifically trained to address learning disabilities, they remain responsible to teach all students. "Good teachers have always known that students have different ways of taking in new information and that instruction which is best for one student is not necessarily so for another" (Sparks & Ganschow, 1991, p.11). Students with different learning styles and needs benefit from material that is presented in several ways. In addition to the instructional presentation and tailored teaching strategies, being aware of students' interests and abilities can help the teacher individualize material to increase interest in the subject matter. "Getting the correct balance and providing appropriate assistance is, for the teacher, a truly cognitively challenging task" (Tharp, 1997, p. 3).

The current approach to foreign language instruction is to teach language for communication. Incorporating real situations that require students to use the language for communication makes the learning experience more meaningful and effective (Beebe, 1994). Students can learn language systems and word meanings better if they are engaged in meaningful learning experiences where they can apply rules and vocabulary instead of simply memorizing large lists and constructions. An experience-based atmosphere can be created with material that is related to the lives of the students. Integration of the language

into the interests of the students enables the students to learn the language for a purpose and is preferable to the traditional use of drills and rules (Berman, P. et al., 1995). Tharp (1997) suggests that teachers should design instruction around realistic circumstances and culturally authentic language so that students are exposed to cultural experiences in the language. Instruction should include realistic settings so students can apply skills and knowledge in situations beyond the school setting where the target language is spoken. For example, where there is a large population of Hispanics, the school should involve the community in a variety of settings so students appreciate the diversities around them and understand the cohesiveness of what they are learning and how it impacts the community.

The large amounts of memorization and recall required to learn a foreign language can be particularly frustrating. Understanding and addressing the special needs of certain students is essential to help them succeed in a foreign language and are vital to the teacher in maintaining discipline. This study will investigate what specific techniques Spanish teachers use to address the learning needs of learning disabled students. This study will concentrate specifically on Attention Deficit Disorder/ Attention Deficit Hyperactivity Disorder (ADD/ADHD), Dyslexia, Dysgrafia, and Auditory-Processing Disorder.

Methodology

Between October and November, 2000, the researcher interviewed six Spanish teachers from public and private schools in the Winston-Salem, North Carolina area. Three middle school and three high school teachers were interviewed. Two of the high school teachers taught beginning levels of Spanish and one taught higher levels. The middle school teachers taught a range of beginning and advanced levels. The interviews included questions about training and experience with teaching exceptional. The purpose of the study was to determine specific teaching strategies these Spanish teachers use to address the needs of learning disabled children in their classes and recommendations they have for other teachers facing similar challenges. After interviewing, the researcher observed two of the middle and two of the high school teachers to see strategies incorporated in their instructional presentations that addressed the needs of the learning disabled children in their classes. Using the results of the observations and interviews, the researcher studied and analyzed the information and drew conclusions about specific teaching strategies that facilitate teaching Spanish to children with learning disabilities.

Results and Conclusions

According to the interviews, most teachers already include a variety of teaching methods in their instruction, so they do not drastically change their teaching methods depending on the needs of their students in the class. However, most reported that assessment and expectations are altered according to the different needs or abilities of their students. Learning disabilities such as ADD/ADHD and processing disorders including dysgraphia, auditory disorders and dyslexia are the most common in the classes involved in the study. Memory problems, difficulties with written expression, and obsessive compulsive or anxiety disorders are also common.

The teachers interviewed offered a variety of learning and instructional strategies for each disability. Some of the learning strategies for ADD/ADHD are assigned seating, more rapid instruction, signals/gestures to indicate inappropriate behavior, and special review materials for tests. Instructional strategies for ADD/ADHD include the incorporating a variety of activities such as Total Physical Response, visuals, and group work. For Dyslexia and Dysgrafia, teachers recommend assessment strategies such as verifying accuracy of notes copied in class, testing orally or providing word banks for written assignments, grading with specific allowances according to the students' orthographic disorder, and allowing extra time on assignments when necessary. For Auditory-Processing Disorder, teachers suggest administering shorter tests, allowing extra time for written and oral activities, providing more group work, and including a slower instructional pace. Furthermore, teachers note that mnemonic devices and repetition help students with memory problems. Teachers need to strive toward helping students learn how to learn by identifying their strengths and compensating for their weaknesses. Study skills and organization should be taught to all students, but they are particularly beneficial for students with learning disabilities.

The teachers also provided general recommendations for assisting students with learning disabilities. They recommended that in the classroom, teachers should motivate students with student-centered activities and cultural experiences and rewards. Teachers should provide a structured environment in which they coach students on how to approach learning in an efficient manner. These techniques include organizing notes and study materials for tests. The teachers interviewed also remarked that they would benefit from

attending workshops/classes on addressing learning disabilities in the classroom. Above all, they advised that common sense, compassion, and patience are essential.

In summary, there are various methods used to address specific learning disabilities in teaching Spanish. Each disorder requires personal attention in order to make adjustments according to the needs of the individual student. The challenge lies in deciphering what strategies work best for each student and how this instruction can be integrated into the lesson presentation to meet the learning needs of all students and the demands of the curriculum.

References

Barr, V. (1993). Foreign language requirements and students with learning disabilities. (Report No:EDO-FL-93-04). Washington, D.C.: Information for HEALTH newsletter (ERIC Database #ED355834).

Beebe, M. (1994). Second language learning in a social context. (Report No. EDO-FL-94-05). Washington, D.C. (ERIC Database #ED367143).

Berman, N. (2000). Playing past learning disabilities. *Scientific American*, 102.

Berman, P., McLaughlin, B., McLeod, B., Minicucci, C., Nelson, B., & Woodwoth, K. (1995). *School reform and student diversity, I.* Santa Cruz, CA: National Center for Research on Cultural Diversity and Second Language Learning . (ERIC Database #ED397549).

Clark, M. (1997). Teacher response to learning disability: A test of attributional principles. *Journal of Learning Disabilities*, 30 (1), 69-79.

Curtain, H. & Pesola, C. (1994). *Languages and children: Making the match.* (2nd ed.). White Plains, NY: Longman Publishing.

Ganschow, L., Sparks, R., Javorsky, J., Pohlman, J., & Bishop-Marbury, A. (1991). Identifying native language difficulties among foreign language learners in college: A "foreign" language learning disability? *Journal of Learning Disabilities,* 24 (9), 530-542.

Javorsky, J., (1996, May). An examination of youth with attention-deficit/hyperactivity disorder and language learning disabilities: a clinical study. *Journal of Learning Disabilities*, 29 (3), 247-259.

Morvitz, E., & Motta, R. (1992). Predictors of self-esteem: The roles of parent-child perceptions. *Journal of Learning Disabilities*, 25 (1), 72-80.

Schneider, E. (1996). Teaching foreign languages to at-risk learners. (Report No: EDO-FL-97-03). Washington, D.C.: (ERIC Database #ED402788).

Scott, S., & Manglitz, E. (2000). Foreign language learning and learning disabilities. *Their World.* [on-line], Available: http://www.ldonline.org/ld_indepth/foreign_lang/their_world_2000.html

Sparks, R., Ganschow, L. (1991). Foreign language learning differences: Affective or native language aptitude differences? *Modern Language Journal.* 75, 3-14.

Tharp, R. (1997). From at-risk to excellence: Research, theory, and principles for practice. Paper for Center for Research on Educational Diversity Excellence. Washington, D.C.: (ERIC Database #ED409717).

The Success of Teaching the Concepts of Evolution:
The Effect of Concept Integration on End of Course Exam Scores

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The attention that the subject, evolution, receives in general high school biology courses varies a great deal from minimal or no coverage to fully integrated coverage in most topics to anything between the two extremes. The purpose of this study was to determine if understanding increased with the dispersal of evolutionary content throughout the curriculum as reflected in End of Course Test scores. Biology teachers in several North Carolina public high schools were surveyed for their teaching methodologies and scores for the Human Evolution section (section 7.4) on the end of North Carolina End of Course Test. Method type and scores were analyzed for cause and effect using a One-Way ANOVA. There was no significant relationship found.

Review of the Literature

The National Science Teachers' Association (NSTA) made a series of recommendations that emphasized the unifying nature of the concept of evolution quoting the *National Science Education Standards*. "Conceptual schemes such as evolution '...provide students with powerful ideas to help them understand the natural world'" (1997, p. 26). The North Carolina State Board of Education (2000), in accord with the NSTA recommendations, developed eight competency goals for biology in North Carolina including one that deals explicitly with evolution (NC Department of Public Instruction, 2000, p.6). North Carolina teachers are responsible for incorporating this material into their courses and are held accountable by the presence of questions on the end of course exams that are directly related to the ideas relating to evolution.

Much of the reason for the controversy over teaching evolution in the schools stems from the special creation versus evolution debate. Many texts and teachers opt to present evolution in a non-offensive, neutral way that includes a single unit that covers the material

that students will be responsible for on end of course examinations. Another, extremist means of resolving the issue is to remove the subject completely from the curriculum, as the Kansas Board of Education did in 1999 (Skoog 1999). However, Osif (1997) looked at the relationship between the religious beliefs of Pennsylvania high school teachers and their views on the importance of evolution in the science classroom. More than two thirds of surveyed teachers agreed with the statement "the theory of evolution is central to the study of biology," regardless of personal belief (554).

Wiske (1998) discussed the importance of "concepts that are richly webbed to other ideas and that must be clearly understood in order to develop more sophisticated understandings" (p. 71). Evolution is an obvious choice for one of these key concepts in biology. Integration provides a framework on which students can build, which then improves reasoning. Johnson and Lawson (1998) pretested nonmajors enrolled in a biology course for reasoning ability and prior knowledge. Comparing pretest scores with final exam scores, the authors concluded that "reasoning ability but not prior knowledge or number of previous biology courses accounted for a significant amount of variance in final examinations score" (p. 89).

The factor working against integration is testing. Madaus (1999) stated, "if important decisions are presumed to be related to test results, then teachers will teach to the test" and that "scores on tests of basic skills rise, not that the skill necessarily improves" (p. 80).

Studies have shown that concept integration, with subjects like evolution, has improved students' critical thinking skills, reasoning ability, and retention. What has been determined to be effective in teaching methodology is sometimes countered by the implementation of curriculum objectives that are aligned with the End of Course Test questions. In many cases, this leads to the attitude "what gets tested gets taught" without taking into consideration the subject material (Brooks, 1991, p. 154). The hypothesis is that teachers' scores will increase in this order: those who do not teach evolution, those who teach evolution as a unit only, those who do not teach evolution as a unit, but introduce the theory within other contexts, and those who teach evolution as a unit and integrate the theory within other contexts. The Null hypothesis is that there will be no significant difference between any of the four groups of teacher methodologies.

Methodology

A pilot study was conducted surveying three high school teachers who were asked to comment on the appropriateness of the questions. Taking the teachers' comments into account, the final, modified survey was completed. After adjusting the survey for any unseen problems or deficiencies, surveys were distributed to every high school biology teacher in one county in North Carolina who taught last year.

The teachers fell into one of four categories in terms of time spent on evolution: did not teach evolution; taught evolution in a single unit; did not teach evolution as a unit but integrated the concepts in several other units; and taught evolution as a unit and integrated the concepts in several other units. Using a One-Way ANOVA, the effect of a particular methodology on the end of course exam scores was determined. The surveys assessed several other variables, including number of years teaching, which was examined for correlation with test scores.

Results and Conclusions

A total of 16 surveys were returned. The data was compiled and analyzed using two different statistical tests as needed. First, the effect of teaching method on test scores was analyzed. Since there were four possible teaching styles that could be checked the appropriate test was a One-Way ANOVA. After running SPSS, it was found that the F value was 0.703 and the Significance was 0.569. With an alpha value of 0.05, significance was much greater than the alpha and therefore, the groups are equal. There is no significant difference in scores between different teaching methods. A second test showed no significant correlation between exam scores and years of teaching experience.

Unfortunately, this study seemed to support the null hypothesis. The conclusion is that under the parameters of this study, the hypothesis that scores would increase by methods classified in the specified order must be thrown out. In doing so, the proposed alternate hypotheses must be examined before accepting the null hypothesis.

There was a concern that every teacher would classify his or her teaching methodology as integration only or by unit only. This fear was not warranted since all four methods were reported. However, the numbers were slightly skewed which would account for some measure of error. Nine respondents indicated they had both integrated evolution in

other units and taught it as a single unit. Just three teachers reported teaching evolution as a unit only and three others reported integrating evolution in other units only. Only one teacher reported not teaching evolution.

Another concern was that a significant number of teachers would opt not to teach evolution based on some personal choice or other rationale. As previously stated, only one respondent reported not teaching evolution. This particular teacher did not comment, but the possibility remains that this teacher did not fully understand the question. Several conversations with other teachers indicated such a difficulty. As shown in the appendix, the first rating stated "I did not cover the theory of evolution in my class." The goal summary requested was 7.4, the section dealing with Human Evolution. It is possible that this teacher who reported not teaching evolution actually interpreted the question to read "I did not cover *human* evolution in my class". That is one possible source of error.

An alternative hypothesis that was not considered until after the study was completed is that test score variation may have more to do with the students taking the exam than whatever teaching method a teacher may choose. Teachers were not separated on the basis of regular or honors classes, but this is an important variable that should be taken into account. In some cases, students that are in honors classes will do better on sections that they have not been taught than regular biology students would if they had been taught the material extensively.

A second alternative hypothesis that was formulated after completion of the study is that goal summary 7.4 did not accurately demonstrate knowledge of the theory of evolution. Several of the other goal summaries addressed key concepts of evolution, such as continuity of life and heredity. The other problem with choosing 7.4 is that the section had only nine questions. Do nine questions fairly assess students' understanding of the topic? It is certainly another possible source of error.

So should the null hypothesis be accepted? Was there a significant difference between any of the four groups of teaching methods? According to the data collected in this study, there is no difference. However, there were additional factors that seem to be very powerful that were not considered (teachers misunderstanding the questions, choosing only 7.4, and students' overall school performance). One other variable was eliminated as being a factor, which is a positive. There was no correlation between years of teaching and students'

scores. It is recommended that this study be repeated on a larger scale: surveying all the public high school general biology teachers in North Carolina, for example. For the data that exists, it can simply be concluded that other studies that examine students' course level; contain less ambiguous survey questions; and explore other goal summaries need to be completed in order to judge accurately whether teaching method has an effect on the understanding of evolution in the classroom.

References

Brooks, M. G. (1991). Effects of centralization on the local level. In M. F. Klein (Ed.), The politics of curriculum decision-making: Issues in centralizing the curriculum (pp. 151-166). Albany: State University of New York.

Johnson, M. A. and A. E. Lawson. (1998). What are the relative effects of reasoning ability and prior knowledge on biology achievement in expository and inquiry Classes? Journal of Research in Science Teaching, 35(1), 89-103.

Madaus, G. F. (1999). The influence of testing on the curriculum. In M. J. Early, & K. J. Rehage (Eds.), Issues in curriculum: A selection of chapters from past NSSE yearbooks: Ninety-eighth yearbook of the National Society for the Study of Education (pp. 71-111). Chicago: University of Chicago Press.

National Science Teachers Association. (1997). An NSTA Position Statement on the Teaching of Evolution. Science Scope, 21(2), 26-27.

North Carolina Department of Public Instruction. (2000). NC standard course of study, science curriculum, biology. [On-line].
Available: http://www.dpi.state.nc.us/curriculum/science/biology.htm

Osif, B. A. (1997). Evolution & Religious Beliefs: A Survey of Pennsylvania High School Teachers. The American Biology Teacher, 59(9), 552-557.

Skoog, G. (1999). Evolution, Standards, and Integrity. The Science Teacher, 66(9), 10.

Wiske, M. S. (Ed.). (1998). Teaching for understanding: Linking research with practice. San Francisco: Jossey-Bass.

Teacher's Perception's of Student/Teacher Relationships in the Classroom

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Introduction

Imagine that you are back in high school again. Walking the halls and seeing all of your high school pals, going out on Friday nights and attending football games with your friends. Now think about you academic experience, with all of the trials and tribulations, and nights that you stayed up doing a project that was due the following day. Now picture your favorite high school teacher. What were the qualities that this teacher possessed, why did you like this particular teacher's class and why does this teacher come to mind over all of the teachers that you encountered during your journey through high school? The purpose of the first few questions is to jog your memory about the high school experience. The purpose of the last question is to enable you to evaluate the relationships that you had with you teacher and the effect that the relationship had on how much you learned from that teacher. It could be possible that your relationship with that teacher did not enhance your performance in their classroom, or that the material covered in that teacher's class was interesting regardless of your relationship with the teacher. But perhaps your favoritism towards the teacher made the material more appealing and you wanted to work harder in this class to achieve at higher levels due to the motivation provided by this instructor. Do you think that one of the reasons that your favorite teacher believed in forming a more holistic relationship with students in his/her classroom was to increase his/her ability to relate to students and enhance their learning experience? This investigation was designed to answer this question by assessing the value that teachers place upon forming relationships with students and what effects, if any, these relationships have on the students' learning experience.

Review of Literature

There have been several studies that address student/teacher relationships in the classroom, most of which have concluded that the student/teacher relationship plays a significant role in a student's learning experience. Alder (1998) conducted a yearlong interpretive research study using the theory of symbolic interactionism to examine the meanings of care to middle school students. Alder concluded that students were more willing to stay on task, pay attention in class, and reach higher levels in classes in which they believed that the teacher "cared" about them.

Niebuhr and Niebuhr (1999) measured the degree of association between student/teacher relationships and student academic achievement using a sample of ninth-grade high school students. The results of the study showed that student/teacher relationships were positively correlated to student academic achievement, which was measured by grade point average. In a similar study, Esposito (1999) investigated the relationship between school climate and student's academic and social development. Esposito (1999) found that the teacher/student relationship was a predictor of academic achievement.

In a study that compared college students' definitions of learning, Theilens (1977) found that of the fifteen freshman students that he interviewed, a majority defined their learning experience in reference to the professors that they have had in class. One student suggested that by just talking to the teacher he gained a new affection for the material that was being presented in class (Theilens, 1977). The majority of the students interviewed by Theilens (1977) took notice of professors that expressed enthusiasm for their subject, and they felt as if their professor's attitude trickled down to the students in the classroom.

Abidin and Kmetz (19997) examined teacher's perceptions of their relationships with students and the perceived quality of the student/teacher relationship. This study concentrated on teacher's behavior towards the "behaviorally challenged child" as compared to the "control child" in the classroom (Abidin et al., 1997, p.17). Both Abidin et al. (1997) and Muller et al. (1999) suggest that teachers find it frustrating to develop relationships with students that are a behavior problem in class and, in turn, they believe that this hinders the learning process. This research supports the conclusion that teachers recognize the importance of developing a relationship in order to facilitate the learning process.

Muller, Katz, and Dance (1999) integrated findings from one national qualitative study and two urban qualitative studies that analyzed two aspects of the student/teacher relationship. These studies explored how teachers and students viewed their relationships as well as how these relationships affected the student's academic achievement. Through the analysis of these three studies, the researchers concluded that teacher's expectations have an effect on students' expectations in the classroom (Muller et al., 1999). In many cases teachers have high expectations but cannot effectively communicate these expectations to their students.

Most of the previous literature discussed indicates that the student/teacher relationship has an effect on the students' academic experience. With this in mind I conducted a study that investigates teacher's perceptions of student/teacher relationships. Because if relationships are an integral part of the learning process, then one would think that teachers would be aware of this fact and make conscious efforts to develop relationships with their students.

Methodology

The goals of this study were: 1) To determine if teachers perceived student/teacher relationships as important to the learning process, and 2) to determine if teachers in Forsyth County were making an effort to get to know more about their students, and if so, what they were doing to accomplish this. The methodology that was implemented in this study involved the administration of teacher questionnaires. The questionnaires were designed to determine teachers' perspectives on student/teacher relationships by asking eight agree/disagree questions and an additional question that asked teachers to rate the importance of student/teacher relationships as it pertained to learning. Eighty questionnaires were given to teachers in each of three different high schools in Forsyth County. The questionnaires were analyzed by using a hand tally and then entering the numbers into Microsoft Excel to make bar graphs that illustrated the results of the surveys. The survey consisted of statements such as: "You make an effort to learn information about students in your class," "Students learn better from teachers that they like on a personal level," and "A student's relationship with their teacher has little effect on how well they perform in that teacher's class."

Results

There were a total of 104 teachers that responded to the survey and out of those 104, all agreed that students would feel comfortable approaching them with a homework problem. Not quite as many teachers, 71, agreed that students would feel comfortable approaching them with a problem that was personal in nature. Seventy-three teachers agreed that students learn better from teachers that they like on a personal level. The first two questions in this set address teachers' perceptions of themselves. A vast majority of the teachers that responded view themselves as approachable, even when the student's problem is not school related. Responses to the third question indicate that teachers believe that being likable in the classroom may contribute to how well students learn from them.

Ninety-three teachers agreed that communication with students outside of the classroom, in environments such as the cafeteria and the hallway, is very important. Ninety-eight teachers responded that they make an effort to learn information about the students in their classes and eighty-five teachers in the sample agreed that it is important that teachers make an effort to attend student's extracurricular events. Opinions varied on whether it is important that students know teachers on a personal basis. Fifty-two teachers agreed that students should know things like where teachers went to school and a teacher's family status. The last question in the survey asked teachers to rate the importance of teacher/student relationships, as they pertain to learning, on a scale of 1 to 10, with 10 being of utmost importance. The most popular rating was 7, with twenty-seven teachers marking that response. There were eighteen teachers who marked 8 and sixteen teachers who circled 9. Overall, most teachers indicated student/teacher relationships play an important role in the learning process.

The results from this survey support the literature in that teachers in Forsyth County believe that student/teacher relationships are an integral part of the learning process. However, teachers are not always willing to disclose information about themselves to their students and literature indicates that the more a student knows about their instructor the more comfortable they will fell in the learning environment (Theilens 1999). There were several teachers that made additional comments on the surveys that addressed many instances of students learning more from teachers that they did not like. Comments were also made about attending students' extracurricular events. Some teachers did not believe that students cared

if their teachers were present at athletic events and things of that nature. Yet most teachers did agree that the teacher/student relationship, to whatever degree it is formed, has an impact on student performance in the classroom. With this knowledge, present and future educators can be mindful of making efforts to reach students in their classroom, and this can be done through several avenues. This study could be further enhanced by surveying students concerning their perceptions on student/teacher relationships in the classroom and what effects that these relationships have on their desire and motivation to learn.

References

Abdin, R. & Kmetz, C. (1997). Teacher-student interaction as predicted by teaching stress and the perceived quality of the student-teacher relationship. ED41330

Alder, N., & Moulton, M. (1998). Caring relationships: perspectives from middle school students. Research in the Middle Level Quarterly, 21, (3) 15-32.

Esposito, C. (1999). Learning in the urban blight: School climate and its effect on the school performance of urban minority, low-income children. The School of Psychology Review, 28 (3) 365-377.

Muller, C., Katz, S., & Dance, L. (1999). Investing in teaching and learning: Dynamics of the teacher-student relationship from each actor's perspective. Urban Education 34, (3) 292-337.

Nierbuhr K. & Nierbuhr R. (1999). An empirical study of student relationships and academic achievement. Education, 119, (4) 679-681.

Theilens, W. (1997). Undergraduate definitions of learning from teachers. Sociology of Education, 50, 159-181.

No Wrestling Allowed: Teaching Controversial Context in High School Social Studies

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A major contention among historians has been the merits and limitations of investing in historical objectivity. Peter Novick (1988) purports that objectivity in the field is a "noble dream." Yet many students learn history as a factual account of the past that should not be questioned. According to sociologist, James Loewen (1995), the emphasis placed on textbooks in the history curriculum has created an uninteresting milieu for learning. Loewen's (1995) research suggests that textbooks reduce historical events and characters to one-dimensional images with no conflict or real suspense. In addition to the influence of textbooks on secondary students' knowledge of history, is the influence of educators who are revered as all knowing. Studies conducted in collegiate environments find that students believe that professors, " are or want to be treated as 'experts who arrive in class to deposit 'the truth' into students' heads" (Lusk and Weinberg, 1994, p.302). According to Zeigler (1967) uncritical analysis in the classroom, "operates basically to reinforce a belief in the desirability of maintaining the status quo" (p. 119).

In this study, I examine United States History teachers' feeling towards covering controversial context in the classroom. Specifically, I focus on their coverage of slavery and Reconstruction, as literature on controversial context suggest that subjects with racial themes have traditionally been taboo in secondary classroom discourse (Evans, Avery, and Pederson, 1999; Harding 1991; Williams, 1994; Chasteen, 1987). While the Civil Rights Movement prompted an improved analysis of slavery and Reconstruction in textbooks, examination of the impact of slavery and Reconstruction on issues of race and race relations are presently thwarted (Loewen, 1995). Revisiting how we learn and teach history is imperative to creating more inclusive and critical classroom environments. For students of color a critical reexamination of history is "the necessity, to excavate a history, to find out the truth about

oneself! is motivated by the need to have the power to force others to recognize your presence, your right to be here" (Baldwin, 1979, p. 512).

Literature Review

Few systematic studies have examined the way that controversial context is covered in the high-school classroom. This may be the effect of the fact that contentious topics in secondary classrooms are infrequent (Shaver, Davis, and Helburn, 1979; Goodlad, 1984). A study conducted in Michigan found that of social studies, English and biology teachers only 16 percent discussed taboo topics, and this was only 25 percent of the time (Massialas, Sprague, and Sweeny, 1970). The dearth of attention given to controversial issues may be explained by the hesitation to challenge educational institutions, the influence of textbooks on secondary learning, and the conservative nature of teacher training (Evans et al, 1999). Harmon Zeigler's (1967) study found that teachers are reluctant to discuss controversial topics because of sanctions from the community. The most recent examination of teacher attitudes on taboo topics in the classroom focused on pre-service teachers because they had not been inculcated into a school culture (Evans et al., 1999). The general finding of this research proposed that teachers are more comfortable with less controversial topics than highly controversial topics. The conclusion of this research contends, "the greater the distance in space and time from the individual lives of students the greater the focus in the curriculum and the less chance of emotional involvement or controversy" (p. 221).

Race, sex, and religion are the most common controversial topics that emerge in the secondary classrooms (Evans et al., 1999). This is also the case in college curriculums. Studies conducted on college campuses have found that conversations of inequality in relation to race and gender are difficult for most students to discuss (Lusk and Weinberg, 1994; Harding 1991; Williams, 1994; Chasteen, 1987). Lusk et al (1994) found that there were three main major reasons students were uncomfortable with these issues. First, students are socialized to avoid conflict inside and outside of the classroom. Second, students were cautious about sharing their thoughts because they felt they should be experts to make comments on the topic. Finally, students did not want to offend their peers, or appear to have ideas that were outside a middle of the road stance. However, some college professors have implemented discussions of race and gender in their course to shift important discussions of inequity and perspective further.

According to the research, the integration of controversial topics in the study of history is valuable as it promotes critical thinking (Patrick, 1986). Literature on integration of controversial topics in the classroom suggests that it promotes research, helps students learn to deal with conflict, urges the application of knowledge to life, and helps students learn about themselves. Yet as the above-mentioned discussion suggest teachers and schools seem reluctant about including anything taboo in classroom. This pilot study extends the research by analyzing teachers' attitudes about the coverage of controversial issues in the classroom.

Methodology

Six U.S. history teachers were interviewed between November 11 and December 4, 2000 at two public high schools in a southern mid-size town. At the outset of the study, teachers were contacted by letter and asked to sign up for a fifteen-minute interview. Only social studies teachers who had taught U.S. history in the past two years were included in the study. All voluntary participants were asked a series of open-ended questions pertaining to how they teach slavery and Reconstruction. They also were asked questions on their feelings about covering controversial topics in the classroom. In addition to answering open-ended questions, teachers responded to a series of likert scale-questions. The researcher pledged to keep the anonymity of both teachers and schools throughout the research project. Subjects were numbered and will be referred to by number throughout the project. Schools are not named. For data analysis five interviews were taped and transcribed.

Results

At the outset, I suggest that we must be cautious in making generalizations from the results of this study, as there were only six subjects included in the sample. There are general patterns that do emerge in this research, which indicates that further examination of this topic is necessary.

Results from this study indicate that teachers normally encourage students to question or challenge what they present in class. However, students typically have not challenged teachers when they present the topic of slavery and Reconstruction. This is consistent with the research of Lusk and Weinberg (1994) who posit that students acknowledge teachers as experts whose purpose is to deposit knowledge.

While students may not challenge what teachers say about slavery and Reconstruction there seems to be a heightened anxiety among students when these topics are discussed in U.S. History classes.

> "Sometimes, [students] will say, over and over 'I just don't want to talk about it, this. I just don't like talking about this. Ms. Bee don't you know you to you just go'in to make us mad.'" Interviewee #3

Similarly another teacher purported that,

> "[Students] have a hard time with the fact that slavery even existed here at all. For a lot of them , they want it to be an issue that we mention and move on……I think it brings up a lot of historical memory that they don't want to discuss." Interviewee #6

Five out of six subjects claim that they enjoy covering controversial racial issues, but only two out of six teachers are comfortable when students do not come to a common consensus during discussion of controversial topics. In addition, while slavery and Reconstruction has racial underpinnings, which typically lead to controversial discourse, all teachers in this sample stated that there is not much disagreement among students when this topic is discussed. Most students would agree that slavery was wrong. Tensions among students arise, however, when they are asked to discuss the impact of slavery on present day race relations.

> "I don't know so much that they've disagreed about the slavery issue, but I think there are-uh some kids in the school who are racists, both black and white. And they disagree just in the races being together. But I've never had a big uh-uhm disagreement on the issue of slavery." Interviewee #5

Concurrently another teacher states:

> "Because our discussion, we always try to make things relevant to today. So our discussions always lead to how slavery impacted us today and we talk about racism today, and then when we get into those issues, it's a lot more personal." Interviewee #6

Students also say:

> "Why do you want to blame us? It wasn't me." Interviewee #3

Overall, five of the subjects enjoy covering controversial topics in the classroom. Common sentiments were:

"Love to [discuss controversial topics]. I -I wish I could do it more… I would love to structure all my classes … based upon controversial topics." Interviewee#1

One teacher discussed the merit of using controversial subjects to teach:

> "I enjoy presenting controversial issues in the class because it allows them to think and figure things out and-and voice their opinions, so that you know that ....allows them....to figure things out for themselves." Interviewee #5

While issues of race may spark tensions and debate in the classroom when teacher frame it to look at its impact on us today, the most common controversial topics discussed in U.S. History tends to deal with religion and abortion.

The findings of this pilot study suggest that teachers may be more open to using controversial discourse to teach history. However, I it also seems that teachers are uncomfortable with the conflict that may occur. While teacher may like to integrate controversial discourse into their lessons a common concern was the amount of time available with the focus on end-of-course exams.

References

Baldwin, J. (1979). Just above my head. New York: Dial Press.

Chasteen, E. (1987). Balancing the cognitive and the affective in teaching race relations. Teaching Sociology, 15, 80-81.

Evans, R., P. G. Avery, and P.A. Pederson. (1999). Taboo topics: Cultural restraint on on teaching social issues. The Social Studies, 90, 218-224.

Goodlad, J. (1984). A place called school: Prospects for the future. New York: McGraw-Hill.

Harding, B. (1991). Unstratifying stratification: Teaching race, gender and class. Teaching Sociology, 19(1), 82-86.

Loewen, J. (1995). Lies m teacher told me: Everything your American History textbook got wrong. New York: Simon and Schuster.

Lusk, A.B. and A.S. Weinberg. (1994). Discussing controversial topics in the classroom. Teaching Sociology, 22, 301-308.

Massialas, B.G., N.F. Sprague, and J.A. Sweeny. (1970). Structure and process of inquiry into social studies issues in secondary schools: Inquiry into social issues. Vol. 1. Ann Arbor: University of Michigan.

Novick, P. (1988). That noble dream: The "objectivity question" and the American historical profession. Cambridge, Mass: Cambridge University Press.

Patrick, J. (1986). Critical thinking in the social studies. Office of Educational Research and Improvement. D.C.

Shaver, J., O.L. Davis, and S. Helburn. (1979). The status of social studies education: Impressions form three NSF studies. Social Education, 43, 150-153.

Williams, J.A. (1994). Classroom in conflict: Teaching controversial subjects in a diverse society. Albany, NY: SUNY Press.

Zeigler, H. (1967). The political life of American teachers. Englewood Cliffs, N.J.: Prentice-Hall.

How High School English Teachers Facilitate Classroom Discussion About Literature

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Introduction

Most people have experienced classrooms which seem lifeless and dull. Some students struggle gamely to keep their eyes open while others submit to fatigue and boredom and simply lay their heads down on their desks. Yet, even in the best classrooms where students are usually alert and the teacher exciting, an important element is missing if healthy class discussion is not a common occurrence. Class discussion, a conversation between class members and *occasionally* the teacher, is pivotal to the teaching of literature. What methods do teachers use within their classrooms to facilitate discussion about literature? How often do they use these methods, and are they effective in increasing student engagement and understanding as it is hoped? Finally, which discussion-generating strategies seem to work best?

Methodology

This study is an attempt to discover how different high school English teachers promote discussion about literature within their classrooms. It is an examination of the myriad of ways teachers try to pique conversation, from use of indirect approaches such as creating a comfortable and student-friendly classroom atmosphere, to more hands on approaches such as spontaneous questioning or the use of groups. The study will also ascertain which methods seem most effective and lead to widespread student engagement. Hopefully, once armed with the details and observations of teachers' methods in sparking discussion and the subsequent student responses, English teachers can use the most effective discussion-generating strategies in their own innovative ways to fire their students' active interest in literature.

Subjects

The subjects are four high school English teachers (two male, two female) and their classes at East Forsyth High School in Kernersville, North Carolina. Each teacher instructs largely one grade level ranging from 9th grade to 12th grade. The classes range in ability, and average approximately twenty to twenty-five students apiece.

Measures/Procedures

Nine class periods taught by each teacher will be observed, for a total of thirty-six class periods viewed. Extensive notes will be taken on when, how often, and in what ways teachers work to create discussion. Notes will also be taken on the student response to these strategies and how it seems such methods affect their engagement with the literature. Near the close of the study, the four teachers will be privately interviewed about their literature discussion strategies.

Analysis

Using the notes, the teachers' discussion methods will be compared and contrasted to illuminate significant similarities and differences, strengths and weaknesses. The notes on student engagement will also be examined in terms of the discussion strategies used. This study is strictly qualitative in nature so the data that is collected will be mainly narrative. The results of the four teacher interviews will then be analyzed and compared to the data collected from classroom observation to see if the teachers' perceptions of their discussion eliciting practices and the influence that these have on their students seem to correspond with actual classroom activity. The interviews will also serve to flesh out the data gathered from the observations.

Review of Literature

Attempts to generate classroom discussion have always been difficult. Teachers frequently become frustrated when their questions are met with a daunting silence. Or, chaos can ensue as a class explores meaningless tangents and fails to engage in crucial analysis. A study conducted by James D. Marshall, Mary Beth Klages, and Richard Fehlman (1991) entitled "Discussions of Literature in Middle-Track Classrooms" examines five English teachers and their attempts at incorporating discussion in their classrooms. The teachers admit that they are largely failing in their efforts and express either disappointment or resignation at this fact. Carrie Anderson, one of the more experienced English teachers,

states, "Having been through all the stages, truthfully, I am still teacher-centered. I guess because it works . . . When I try to do student-centered and it isn't structured, everything just goes to pot" (Report Series 2.17).

James R. Gavelek and Taffy E. Raphael (1996) criticize these more traditional approaches in their article, "Changing Talk About Text: New Roles For Teachers and Students." They define traditional models of teaching as "teachers' dominating classroom talk, students responding to questions provided at the end of stories or within teachers' manuals, and students' lacking opportunities to participate in meaningful discussions with both their teacher and their peers" (pp. 182-3). They mention that researchers and scholars have, instead, pushed for teachers to assume the role as a facilitator or participator in talk about text, rather than dominate discussion.

Since so much evidence points to the benefits of lively classroom discussion about literature, a plethora of articles and studies are devoted to methods of inspiring discussion that teachers can use within their classrooms. Many of these articles stress the importance of using a wide array of discussion techniques and formats. Harry Noden and Barbara Moss (1994, p. 504) use Alaskan Eskimos' 42 names for different types of snow as a metaphor for the variety of ways that discussion can be defined:

> . . . if a teacher uses the word *discussion* to imply only questions that can be answered from the text, he or she denies a number of rich avenues for understanding. For teachers who perceive discussion with the same variety as Eskimos perceive snow, the word *discussion* implies several possible student responses: (a) an aesthetic response, (b) a rhetorical response, (c) a metacognitive response, and (d) a shared inquiry response. (p. 504)

In other words, students benefit from a broad definition of the term *discussion*. The use of many types of talk and organization of this talk is key since tapping into these various methods of eliciting discussion can inspire unique responses from the students.

Results and Conclusions

After reading copious amounts of literature that illuminated the glaring lack of discussion about literature in high school English classrooms, I was not overly shocked by the results of my study. Out of thirty-six total class periods observed (nine taught by each of the four teachers) only twelve classes contained even fleeting instances of classroom discussion. This translates into thirty-three percent of the total observed classrooms which had moments of discussion. More worrisome, however, is the fact that in almost every one

of these twelve classes, the discussion lasted for extremely brief periods of time. In fact, most instances of discussion probably lasted under five minutes. Yet, despite these grim numbers, every teacher was observed implementing a variety of specific methods in order to facilitate healthy discussion of literature. Often, however, the students did not seem to respond as vigorously as it was hoped they would.

Teacher A, an instructor of honors and standards Senior English classes, seemed to mainly rely on questioning techniques in order to coax talk about literature out of her students. In her interview, she mentioned that she was currently attempting to break out of a habitual practice of asking her students pointed questions. She explained that she used to do this in order to receive certain answers that would clarify specific perspectives and points about the literature that she wanted to cover. Now, she said that she is trying to ask more open-ended questions to just elicit her students' general responses to literature. The observations of Teacher A seem to correspond with her interview question replies. She often would spend a lot of time asking narrow questions about the texts, especially with her standards classes. Yet, she appeared to be making a very concerted effort to include more open-ended questions as well.

Teacher B instructs regular and honors Juniors, as well as teaching the Introduction to Journalism and Newspaper classes at East Forsyth. Observations of his classes highlighted his unique questioning technique in order to encourage classroom discussion. While Teacher A concentrated on asking open-ended questions, Teacher B would ask provocative or controversial questions. Or, he would make obvious connections between the literature and the students' lives. In the best discussion witnessed during the thirty-six total observations, he asked his students if Twain's Huck Finn is a racist. The immediate and enthusiastic response was astounding.

Teacher C, a teacher of honors and standard tenth grade students, has a very different approach to class discussion about literature. He does not seem too caught up in question phrasing or desk arrangement. Instead, the discussion that occurred amongst his students seemed to stem from the loose atmosphere that always permeates his classroom. Teacher C also periodically organized students into small groups. This practice seemed to vary in effectiveness, depending upon the task. When they gathered for peer editing of papers, the students frequently were off topic, discussing their weekends as often as their respective

papers. But when the students were placed in groups to ponder over test questions before individually taking the test, they were much more engaged and intent on each other's opinions.

The last teacher, Teacher D, instructs regular and honors Freshmen. As with all of the teachers, only snippets of true conversation were ever observed in her classroom. These snippets seemed to largely arise from her use of group work. She would fairly often arrange students into small groups and ask each group to ponder a particular question or element as it related to whatever piece of literature the class happened to be exploring at the time.

Each of these four East Forsyth High School teachers seemed to believe that while situations could be made ripe for class discussion, true conversation amongst students will always remain something that can never be fully controlled. All of the subjects said that teachers have the ability to shape the classroom atmosphere, making it conducive to discussion. But most of them added that a lot depends on the students as well. In other words, they feel that no teacher can force conversation.. While all the teachers enjoyed the class discussion when it happened to arise, they did not seem to go out of their way to evoke conversation and manipulate it into happening.

In conclusion, based on all the observations and interviews, those methods that squarely placed discussion into the students' realm worked best in facilitating true back and forth exchanges about literature. Unfortunately, the hesitancy to let go and allow for student-centered classrooms was obvious. As a result, true class discussion about literature was a rare occurrence in these four classrooms.

Appendix

Gavelek, J.R., & Raphael, T.E. (1996). Changing talk about text: New roles for teachers and students. Language Arts, 73(3), 182-192.

Marshall, J.D., Klages, M.B., & Fehlman, R. (1991). Discussions of literature in middle-track classrooms. Report Series 2.17.

Noden, H., & Moss, B. (1994). Perceiving discussion as Eskimos perceive snow. Reading Teacher, 47(6), 504-506.

Is the Number of Heuristic Devices Employed by High School Students Related to Their Success in Answering Algorithmic and Concept Oriented Chemistry Problems?

by
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"Does the ability to solve a (chemistry) problem imply an understanding of the molecular concepts behind the problem?" (Pickering, 1990). Several research studies in chemistry have indicated that students rely on the use of algorithms to solve problems because they do not have the conceptual understanding on which the chemistry problems are based (Bunce, Gabel, & Samuel, 1991; Friedel & Maloney, 1995; Greenbowe & Herron, 1986; Lythcott, 1990; Nakhleh, 1993; Nurrebern & Pickering, 1987; Pushkin, 1998; Sawrey, 1990). Many students can correctly answer a question about a chemical idea where the solution requires the application of an algorithm, but these same students cannot answer a conceptual problem related to the same topic (Nakhleh, 1993). Chemistry educators have assumed that the ability to solve problems is equivalent to understanding molecular concepts, and that the most significant difficulties their students are having are because they possess deficient mathematical skills (Goodstein, 1983). Research studies have provided evidence to the contrary.

Review of Literature

Nurrenbern and Pickering (1987) developed a testing instrument that required college freshmen enrolled in general chemistry to answer a series of questions concerning four main areas of chemistry that are representative of material covered in introductory chemistry courses. Students were asked to solve both traditional problems, (these could be solved using algorithmic, or "plug and chug" techniques) and related multiple choice questions that lacked mathematical content, and instead required a purely conceptual understanding of what was occurring chemically. Their results indicated that students were far more successful in answering the traditional, algorithmic-based questions than the

concept questions (65 % answered the former correctly, but only 35 % could answer the latter).

Since this 1987 investigation, other researchers have repeated Nurrenbern and Pickering's study by administering the same (or very similar) questions to a variety of college freshman, and the percentage of students able to answer the algorithmic questions was in all cases higher than the percentage of students that could answer correctly the conceptual (Nakhleh, 1993; Saurey, 1990; Pickering, 1990).

Recent approaches to investigating this issue have incorporated "think aloud" techniques, where interviewers ask students to solve chemistry problems (but not those of the Nurrenbern and Pickering (1987) study) out loud, so that they might identify the methods/strategies students are or are not using when solving chemistry problems (Nakhleh, et al., 1996; Mason, et al., 1997; Herron & Greensbowe, 1986). Herron and Greensbowe (1986) enumerated techniques that were used by successful high school and college problem solvers (ie. drawing diagrams, checking that their results are consistent with other information in their memories, etc.) that were absent in the ways unsuccessful problem solvers attempted to answer a problem.

Methodology

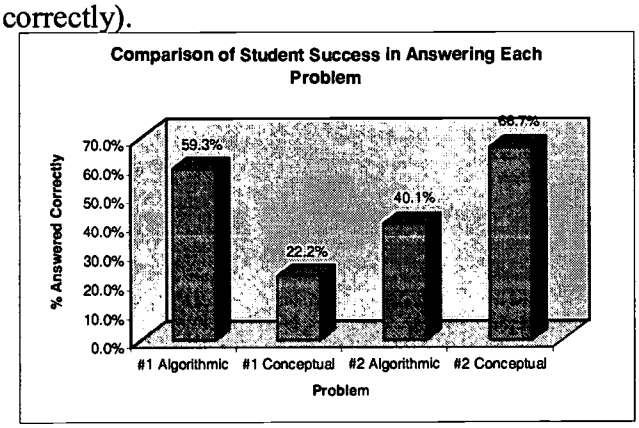
Students were interviewed individually and asked to solve out loud two pairs of multiple choice chemistry problems (taken from Nakhleh, 1993) concerning gas laws and empirical formulas. Each pair consisted of a problem that required a student to work through an algorithm to produce a numerical answer and a problem that required the student to use his/her conceptual knowledge of the same topic to arrive at an answer. Any heuristics (problem solving strategies) that a student used in arriving at an answer were recorded. The strategies included (but were not limited to): trial and error, thinking of the problem in terms of the physical system discussed, solving a special case, solving a simple problem that seems related to a difficult one and then analyzing the procedure, breaking the problem into parts, substituting numbers for variables, drawing diagrams to represent molecules/atoms, and checking results (either interim or final) against other information in the memory. A pilot studied was performed using three students to determine if the questions were appropriate.

The twenty seven high school students (16 female, 11 male) interviewed in this study were selected from a population of students enrolled in first year Chemistry courses at two

suburban high schools in western North Carolina. As a result of county requirements, all students were either enrolled in or had completed Algebra II, and of those interviewed, ten were sophomores, fifteen were juniors, and two were seniors. The group consisted of six African Americans, two individuals of Asian (Vietnamese and Indian) descent, while the remaining nineteen students were Caucasian. Twelve of the students interviewed in this study were enrolled in a "traditional" chemistry class, where they experienced very few laboratory activities (less than two a semester), and instead solved problems from their text and worksheets provided by their instructor. The other fifteen students were enrolled in a "nontraditional" chemistry class, where their instructor engaged them through daily laboratory exercises and problem-based learning activities rather than assigning them problems to do from their texts.

Results and Conclusions

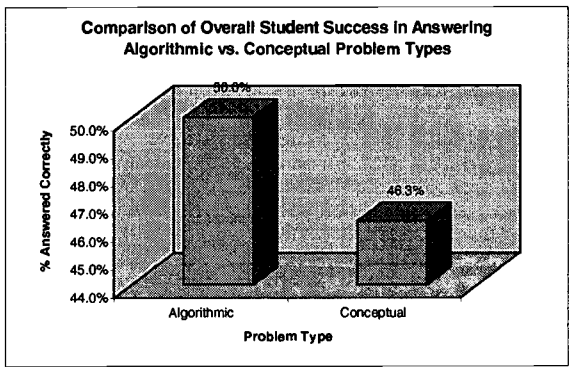
The graph below compares the percentage of student success in answering each of the questions (those labeled as #1 concerned gas laws, while those labeled as #2 concerned empirical formulas). Students were most successful (66.7 % answered correctly) in answering the #2 conceptual problem, and least successful in answering the #1 conceptual (only 22.2 % answered correctly).

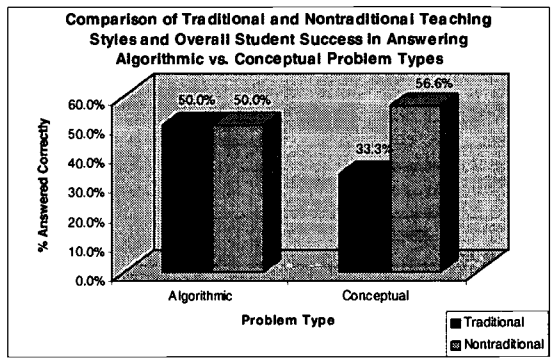


If the information in the above graph is combined, it can be shown that students were slightly more successful (50.0 % vs. 46.3 %) in answering algorithmically based problems than conceptually based ones, as the graph below indicates.

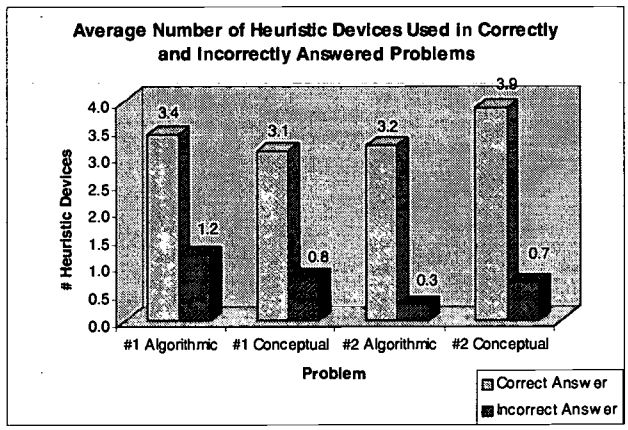
Although it was not the original intention of this study to examine the differences in students' thinking as it may/may not relate to the different pedagogic techniques employed by their teachers, analysis of the data has indicated that students from a nontraditional class

setting are more successful in answering concept-based problems than those who have experienced a more traditional teaching style (56.6 % vs. 33.3 %). Students from both traditional and nontraditional classes were equally successful in answering algorithmic based questions (50.0 %). This comparison is shown in the bar graph below.





The principal aim of this study was to determine if students who were successful problem solvers could be found to be using a greater number of problem solving techniques (heuristics) than students who answered problems incorrectly. The number of devices employed by a student for each question was totaled, and the results are depicted graphically below. In all cases, the students who answered a question correctly (whether it be algorithmic or conceptual) used more heuristic devices than those who answered incorrectly. An independent t-test was performed at an alpha = 0.05 for each of the four questions asked, and it was determined that there was a significant correlation between student success and the number of heuristic devices he/she employed in solving each problem.



References

Pickering, M. (1990). Further studies on concept learning versus problem solving. Journal of Chemical Education, 67 (3), 254-255.

Bunce, D. M., Gabel, D. L., & Samuel, J. V. (1991). Enhancing chemistry problem-solving achievement using problem categorization. Journal of Research in Science Teaching, 28 (6), 505-521.

Friedel, A. W. & Maloney, D. P. (1995). Those baffling subscripts. Journal of Chemical Education, 72 (10), 899-905.

Goodstein, M. P. (1983). Reflections upon mathematics in the introductory chemistry course. Journal of Chemical Education, 60 (8), 665-667.

Greenbowe, T. J., & Herron, J. D. (1986). What can we do about Sue: A case study of competence. Journal of Chemical Education, 63 (6), 528-531.

Lythcott, J. (1990). Problem solving and requisite knowledge of chemistry. Journal of Chemical Education, 67 (3), 248-252.

Mason, D. S., Shell, D. F., & Crawley, F. E. (1997). Differences in problem solving by nonscience majors in introductory chemistry and paired algorithmic-conceptual problems. Journal of Research in Science Teaching, 34 (9), 905-923.

Nakhleh, M. B. (1993). Are our students conceptual thinkers or algorithmic problem solvers?. Journal of Chemical Education, 70 (1), 52-55.

Nakhleh, M. B., Lowrey, K. A., & Mitchell, R. C. (1996). Narrowing the gap between concepts and algorithms in freshman chemistry. Journal of Chemical Education, 73 (8), 758-762.

Nurrenbern, S. C., & Pickering, M. (1987). Concept learning versus problem solving: Is there a difference?. Journal of Chemical Education, 64 (6), 508-510.

Pushkin, D. B. (1998). Introductory students, conceptual understanding, and algorithmic success. Journal of Chemical Education, 75 (7) 809-810.

Sawrey, B. A. (1990). Concept learning versus problem solving: Revisited. Journal of Chemical Education, 67 (3), 253-254.

Changes in Attitudes
Do a Student's Attitudes Concerning Chemistry
Change after Exposure to Some Basic Chemistry Demonstrations?

by
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Introduction

Personal contact with chemicals is unavoidable; they are in our homes (natural gas, cleaning solutions) and in our food (vitamin C in orange juice and cellulose in corn). Many could not survive daily activities without the use of various medications that are chemicals. Yet, the words chemical and chemistry can bring a look of fear to a student's face. Many students do not understand that chemistry is an intricate part of everyday life. What can be done to ease the fear of students and reduce misconceptions towards chemistry?

Literature Review

Many science issues reported in the news are considered controversial or risky, such as cloning, genetic engineering, and biotechnology. The transfer of relevant scientific information to students can assist them in making informed decisions concerning such issues. The perceived relevance and importance of the science content is important to students (Morrell, 1988). Students responding to a Spears and Hathaway survey in 1975 indicated they were unsure as to whether or not science contributes positively to the quality of life. Both Singh (1999) and Steglich (2000) reported success with increasing the positive attitudes of their students towards science. Even non-science students' support the use of science in society but are not sure science contributes to a higher or better quality of life (Spears and Hathaway, 1975). In 1998, Parkinson, Hendley, Tanner, and Stables concluded that practical work is important to motivate the students, and the students need to be "made aware of the significance of science in their everyday lives in order that they can play a full part in the society of tomorrow." Samuels (1996) proposes "Students should realize that science has a direct impact on the environment in which they live and that it is interdisciplinary."

Research indicates the key to better chemistry or science positive attitudes is to ensure the students believe the material is relevant.

A negative attitude toward science may not be due to lack of knowledge. Abendroth and Friedman (1983) found that just hearing the word "chemistry" increased the anxiety level of community college chemistry students and past negative experiences often were the cause of the present anxieties. In a study conducted by George (2000), the evident trend was a decline in students' favorable attitudes towards science over the middle and high school years. According to George, "Special efforts need to be made by schools to help students view science with more positive feelings." Even the North Carolina Science Curriculum standards (State Board of Education, Department of Public Instruction, Science Curriculum) call for the importance of a scientific approach to societal issues, with emphasis on the use of evidence in decision-making. Students need to be informed about all aspects of a science issue in order to make informed decisions concerning possibly controversial issues.

Can we relieve the anxieties and negative attitudes concerning chemistry and science before the students graduate from high school? If a student can decrease the anxiety towards chemistry, perhaps there will be less anxiety towards science in general. The purpose of this study is to analyze the initial attitudes of students concerning chemistry, expose the students to "everyday" chemistry, and then reassess the attitudes. It is expected that students who are exposed to the science demonstrations will have more positive attitudes or feelings towards chemistry than prior to the demonstrations.

Methods

The subjects were 113 high school students, grades 9-12, from a Winston-Salem/Forsyth County Public School in North Carolina, who were administered Likert scale pretest questionnaires prior to the initiation of the chemistry demonstrations.
Several general chemistry experiments were carried out, including the use of magic sand, a diaper polymer, Styrofoam and cellulose packaging peanuts, and elephant toothpaste. At the conclusion of the experiments, the selected students became "molecules" and participated in an activity. At the completion of the activities, the students were asked to complete the post demonstration questionnaire. The questionnaire contained the same questions as the pre demonstration questionnaire; with an open-ended statement added for inclusion of student's comments.

Results and Conclusions

Point values were assigned to the responses for each of the attitude assessment questions. For the positively phrased questions, "agree" was worth one point, "unsure" was worth two points, and "disagree" was worth three points. For consistency in the scoring of the survey, the scores for the negatively phrased question responses were reversed. Consequently, a negatively phrased question such as "Chemistry is frightening to me" would be awarded one point for an answer of "disagree," changing it to a positive statement. Therefore, the lowest score from the survey, a six, is related to a highly positive perception of chemistry since it is associated with positive responses. A higher score, the maximum of which is 18, correlates to a highly negative perception of chemistry since it is related to negative responses. A score of 12 would correspond to a neutral attitude.

Figure 1

	Mean Questionnaire Scores				Median Questionnaire Scores				Mode Questionnaire Scores			
	Female		Male		Female		Male		Female		Male	
Grade	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
9	9.9	8.3	9.6	8.6	10.0	8.0	9.0	8.0	11.0	8.0	8.0	8.0
10	9.2	7.3	10.0	7.9	10.0	7.3	10.0	7.9	10.0	6.0	11.0	8.0
11	8.5	7.6	8.8	7.4	8.5	7.6	8.8	8.5	9.0	8.0	8.0	10.0
12	10.0	7.4	8.9	8.9	7.0	9.5	8.5	8.0	10.0	7.0	7.0	7.0
Mean	**9.4**	**7.7**	**9.3**	**8.2**	**8.9**	**8.1**	**9.1**	**8.1**	**10.0**	**7.3**	**8.5**	**8.3**

Figure 1 contains the mean of the total pre- and post- scores from the questionnaire. For each gender and each grade, the mean attitude scores were lower with the exception of the 12th grade males, which remained unchanged. The 12th grade females and the 10th grade males had the largest decrease in scores, of 2.6 and 2.1 points, respectively. Thus, the attitudes of the 12th grade females and the 10th grade males had the most dramatic improvement. On average, the females and males had approximately the same pre-questionnaire attitude: 9.4 for the females and 9.3 for the males. These scores basically correspond to an attitude that is better than neutral (which would result in a score of 12) but not a good as highly positive (which would correspond to a score of 6). For the females, the questionnaire average scores decreased from 9.4 to 7.7 after the demonstrations. The average scores for the males also decreased from 9.3 to 8.2. Overall, the average pre-questionnaire score for all students was 9.4 and the average post-questionnaire score was 7.9. The data for the mean values is also summarized below in Figure 2, by grade and gender. In addition, column 9 illustrates the values for all of the students as a whole.

Figure 2

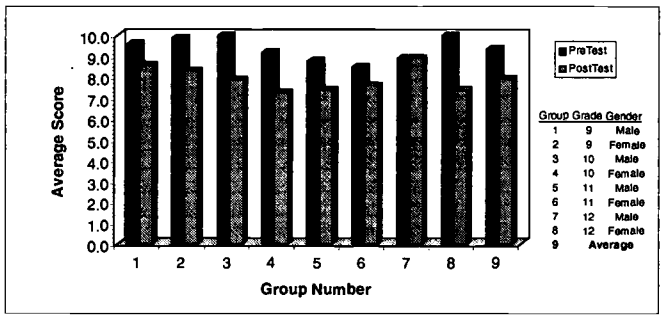
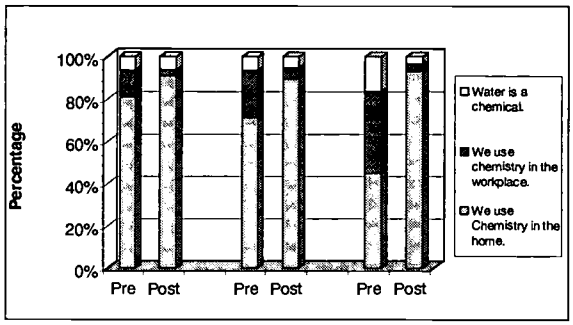


Figure 3



The median and mode values for the pre- and post- scores are also reported in Figure 1. The median score was lower for seven out of the eight groups of students. The exception was the score for the 12th grade females, which was 7.0 for the pre- and 9.5 for the post-questionnaire. Even though the mean score for the 12th grade boys was unchanged, the median score was lower. The mode value for the 10th grade females had the greatest change, from 10 to 6, a decrease in 4 points. The mode was unchanged for the 9th and 12th grade males, but the values were initially low (8 and 7, respectively). The remaining groups mode values were all lower by 1 to 3 points, with the exception of the 11th grade male's, whose mode value increased by 2 points.

A graphical representation of the data from questions 7-9 is in Figure 3. The data indicate the demonstrations were successful in communicating the following: chemistry is used in the home, chemistry is used in the workplace and water is a chemical.

The purpose of this study was to assess the initial attitudes of the high school students, and determine if the attitudes could be improved after the students witnessed chemistry experiments that were related to familiar objects or concepts. The student's attitudes concerning chemistry were not initially negative. The mean scores for all students decreased, indicating the student's attitudes towards chemistry were more positive after the chemistry demonstrations. The data also indicates a higher percentage of students were more knowledgeable about the practical use of chemistry after the demonstrations than prior to the demonstrations. Based on the student's comments, the majority of the students agreed the demonstrations were educational, interesting, practical, and fun. A small percentage indicated the demonstrations were "elementary."

Thus, the students who were exposed to the chemistry demonstrations had a more positive attitude towards chemistry than prior to the demonstrations. The students also obtained more useful knowledge concerning "everyday" chemistry. Hopefully, these students now perceive chemistry to be relevant and will maintain the positive attitude, resulting in less anxiousness in the future when dealing with science issues.

References

Abendroth, W. & Friedman, F (1983). Anxiety reduction for the beginning chemistry students. Journal of Chemical Education, 60 (1) 25-26.

George, R. (2000). Measuring change in students' attitudes toward science over time: an application of latent variable growth modeling. Journal of Science Education and Technology, 9 (3). 213-225.

Morrell, P. D. (1998). Students' attitudes toward school and classroom science: are they independent phenomena? School and Science Mathematics, 98 (2). 76-83.

North Carolina Chemistry Curriculum Standards, [on line], available http://www.dpi.state.nc.us/curriculum/science/chem.htm, (updated, Fall 2000).

Parkinson, J., Hendley, D., Tanner, H., & Stables, A. (1998). Pupils' attitudes to science in key stage 3 of the national curriculum: a study of pupils in South Wales, Research in Science & Technological Education, 16 (2). 165-176.

Samuels, L. S. (1996). Antidotes for science phobia. The American Biology Teacher, 58 (8). 455-461.

Singh, B. R. (1999). A first-day exercise on relevance of chemistry for nonscience majors kindles sustained positive student response. Journal of Chemical Education, 76 (9). 1219-1221.

Spears, J. D. & Hathaway, C. E. (1975). Student attitudes toward science and society, American Journal of Physics, 43 (4), 343-348.

Steglich, C. S. (2000). A writing assignment that changes attitudes in biology class. The American Biology Teacher, 62 (2). 98-101.

Teacher Attitudes Towards Inclusion

by
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December 2000

Issues surrounding Special Education have been topics of debate since the introduction of the Education of All Handicapped Children Act of 1975 (PL 94-142). PL 94-142 provided all children with disabilities a free, appropriate public education. The response to PL 94-142's "appropriate education" requirement was to place Special Education students in a separate setting within the school. The educational ideas presented in PL 94-142 were considerably strengthened by additional legislation, primarily the Individuals with Disabilities Act (IDEA), a law enacted in 1990. In IDEA, appropriate education was defined as educating students in the least restrictive environment (Adams, 1996). The solution to the question of least restrictive environment has been the inclusion model. In inclusion, students spend a small percentage of their time in Special Education classes, but most of their schedule consists of regular education classes.

Inclusion posed an entirely new problem for educators, as they had to design an approach to serve Special Education students. Special Education teachers complete extensive training programs on working with children with special needs, but most regular education classroom teachers have limited experience and training in working with these students. In fact, seventy-five percent of regular education teachers reported they felt they did not have the skills or the educational background to teach students with special needs (Monahan, Marino, Miller, 1996).

Janney, Snell, Beers and Raynes (1995) found that if teachers were provided with opportunities to learn about inclusion that they were more enthusiastic about working in an inclusionary setting. Training could provide a great deal of knowledge and assistance as a resource for teachers. Teachers who had worked in inclusion model classrooms believed that professional development on inclusion could reduce teacher anxiety and correct incorrect assumptions about inclusion. (Janney, et al., 1995) Fifty three percent of teachers stated

having training about inclusion was a condition critical to having a successful experience with inclusion (Werts, Wolery, Snyder, Caldwell, Salisbury, 1996). Teachers felt they needed to be trained in multiple topics, including how to modify lesson plans, assessing academic progress, adapting the curriculum, managing behavioral problems related to the students' disabilities (Buell, Hallam and Gamel-McCormick, 1999). Teachers wanted a great deal of training on inclusion and felt that it will make them more successful in the classroom. Bender, Vail and Scott (1995) found a positive correlation between training and teacher attitudes. While it is apparent that training is required for successful inclusion, Wolery, Werts, Caldwell, Snyder and Lisowski (1995) reported a significant difference in the number of teachers desiring training and those actually receiving it. Because of little or no formal training, teachers did not feel that they are up to the challenge of teaching in a Special Education classroom. Buell et. al (1999) found that teachers felt a lack of confidence in successfully adapting materials for their classroom, being able to control behavior problems and in giving individual assistance to Special Education students who need it.

Another factor that influences teachers' views on inclusion is the allocation of resources to facilitate inclusion. Minke, Bear, Deemer and Griffin (1996) found that teachers view resources as a "critical factor" for successful inclusion. The resources teachers indicated they need money, space, planning time and smaller class sizes. If the teacher does not receive those supports, it can result in a negative attitude on their part toward inclusion. Regular classroom teachers who received resources had a more positive attitude toward inclusion than did teachers who reported not having access to sufficient resources. (Minke et. al, 1996) Therefore, it is necessary to give teachers a large variety of resources and make them readily available if they are to have a positive attitude toward inclusion.

It is important to examine teachers' attitudes toward inclusion because often those attitudes determine how effective the teacher is in the classroom. Bender et. al (1995) found that "negative attitudes toward mainstreaming have been directly linked to less frequent use of effective instructional strategies to facilitate mainstreaming." Therefore, this study examines teachers' attitudes toward inclusion.

Methodology

Six Social Studies teachers from two public high schools in North Carolina were interviewed. Interviews rather than questionnaires were used in an attempt to determine

teachers' feelings about inclusion. The interview consisted of fifteen questions, including what kind of Special Education students the teacher had worked with in the classroom, the teacher's training about inclusion, and the resources available for teachers in an inclusion classroom.

Results and Conclusions

The teachers participating in this research study had from one to twenty-nine years of experience. They taught a wide variety of Social Studies subjects and all had at least 30 Special Education students over the course of their career. Each teacher reported teaching a broad range of Special Education students, encompassing almost every category of exceptionality defined by the state of North Carolina.

In terms of learning about Special Education, several of the teachers stated they had not received sufficient formal training. Two of the teachers stated that they had "a reasonable amount of training", but that they felt that more training would be beneficial to them. When asked about how she had learned what she needed to do for her Special Education students, one teacher stated she felt she had "made her own way".

When asked about IEPs, all teachers replied that they were responsible for looking at their students' IEPs and for understanding the modifications listed therein. Of the teachers surveyed, none reported formal training on reading Individualized Education Plans (IEPs). Teachers stated that they learned how to read IEPs by asking other teachers, or by a process of trial and error. Four of the teachers reported confusion on some IEP modifications.. These four teachers felt frustrated by what they feel are sometimes misleading or unclear modifications on an IEP; "when it says 'assignments modified' I don't know what that means or to what level it needs to be modified." Teachers are legally responsible for implementing all modifications on the student's IEP, a daunting process according to one teacher who reported "I understand what is written about modifications on a student's IEP 75% of the time."

Five of the teachers stated that they had not had satisfactory training from the school system in implementing IEP modifications. No teacher interviewed had a course or in-service training that covered ways to modify lesson plans or the curriculum to meet the needs of Special Education students. All of the teachers reported frustration in trying to modify the

curriculum or their lesson plans. "I have paper upon paper upon paper about EC [Special Education] kids, but I need help figuring out how to modify it to fit my students."

Five teachers reported they were unaware of resources to assist them in modifying their lesson plans to better serve Special Education students. While one teacher reported that there were some computer resources available that were supposed to assist in the inclusion classroom, the teacher stated that the computer lab where the teachers would have access to these resources was unavailable during times she needed to use it. All teachers stated that they felt there should be more resources available to assist teachers in modifying their classes.

All of the teachers expressed a desire for more training on Special Education. When asked who should provide that training, four of the teachers responded that Special Education teachers who teach in the schools should provide it. One teacher stated that training sessions should be offered that are taught by teachers who have had a successful experience with inclusion in their classroom.

One of the teachers stated there were students in her classroom she was not "qualified to teach" and that often "they became behavior problems because she felt she was unable to address their specific needs". Several teachers reported frustration with being unable to separate a student's disability from a discipline problem. The teachers reported some additional concerns. They found it difficult to address the IEP modifications of all of their students all of the time. The teachers reported that they needed more frequent contact with Special Education teachers or with resource teachers for their Special Education students.

All teachers identified enjoying some aspect of having Special Education students in their classroom. Positives identified included causing the teacher re-examine their teaching style, showing other students the value of hard work, allowing students to interact with someone unlike them, and that these students gave answers from an alternative viewpoint.

Each teacher interviewed desired more resources, more contact with resource teachers, more training, more time to plan & design, and fewer Special Education students in each class. Even if a school has fabulous resources, if the teachers are not aware of them, the resources are not beneficial. In another case, a teacher stated that the school had resources available to assist her in providing instruction to her inclusion classes, however she was unable to access these materials when she needed them. If the teachers are correct in stating

there are no resources available to assist them in making lesson plans, modifying the curriculum or in implementing IEP modifications, the school should be responsible for providing teachers with resources to assist them.

A disturbing discovery was that while teachers are responsible for locating and reading a student's IEP and implementing the modifications listed therein, none of the teachers interviewed had received any training in reading an IEP or in implementing the modifications for their students. Teachers are held legally accountable for complying with modifications on a student's IEP. IEPs are not always self-explanatory and some modifications listed on IEPs are not explicit. If a school makes teachers responsible for interpreting students' IEPs, then the school should provide training for teachers in reading IEPs and implementing IEP modifications.

Despite the difficulties several of the teachers teaching in an inclusion model classroom, the teachers were still surprisingly upbeat about teaching Special Education students. All the teachers listed several positives about having Special Education students in their classroom, and all of the teachers agreed that if asked they would volunteer to teach in an inclusion model classroom. The teachers obviously enjoy the interactions they have with their Special Education students and are enthusiastic about teaching them. However, the results of this study indicate the need for universal instruction and support of teachers of Special Education students in order to make the inclusion experience truly successful.

References

Adams, D. (1996). PL 94-142 [Online]. Available: http://projects.scrtec.org/~adams/epr300/resources/p194142.shtml. Accessed June 25, 2000.

Bender, W., Vail, C. & Scott, K. (1995). Teachers' attitudes toward increased mainstreaming: Implementing effective instruction for students with learning disabilities. Journal of Learning Disabilities 28(2), 87-94.

Buell, M., Hallam, R. & Gamel-McCormick, M. (1999). A survey of general education teachers' perceptions and inservice needs concerning inclusion. International Journal of Disability, 46(2), 143-156.

Janney, R., Snell, M., Beers, M. & Raynes, M. (1995). Integrating students with moderate and severe disabilities into general education classes. Exceptional Children, 61(5), 425-439.

Minke, K., Bear, G., Deemer, S. & Griffin, S. (1996). Teachers' experience with inclusive classrooms: Implications for special Education reform. The Journal of Special Education, 30(2), 150-186.

Monahan, R., Marino, S. & Miller, R. (1996). Teacher attitudes toward inclusion: Implications for teacher education in schools 2000. Education, 17, 316-320.

Werts, M., Wolery, M., Snyder, E., Caldwell, N. & Salisbury, C. (1996). Supports and resources associated with inclusive schooling: Perceptions of elementary school teachers about need and availability. The Journal of Special Education, 30, 187-203.

Wolery, M., Werts, M., Caldwell, N., Snyder, E. & Lisowski, L. (1995). Experienced teachers' perceptions of resources and supports for inclusion. Education and Training in Metal Retardation and Developmental Disabilities, 30(1), 15-26.

Teaching Algebra I: One Best System?

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The trend in secondary education is to require Algebra I for high school graduation. Though the importance of the subject is acknowledged, the best method of teaching the material is not a matter agreed upon by all Algebra I teachers. The purpose of this study was to investigate three different curriculums. At one end of the spectrum is the computer-based curriculum Cognitive Tutor developed by the Carnegie Mellon team. At the other end is the incremental approach used in the text written and published by John Saxon. Somewhere in the middle is the method used in most schools–the traditional textbook material augmented with innovative approaches. The intent was to see how students were motivated under each method of teaching and to what extent the teachers' goals for their students were being met.

Review of Literature

Best methods of teaching algebra is a topic under research. Algebra is widely seen as essential for both college-bound and work-bound students. Some consider traditional Algebra I conceptually inconsistent, unnecessarily restrictive for students' mathematical growth and development, and narrowly focused on bare symbol manipulations. Reformers have instead emphasized access to algebraic ideas, K-12 development, and broader conceptualizations of content (Kaput, 1995). These reforms have been recently challenged by critics. often for the absence of skilled development. Assessment standards of the algebra knowledge and skills that students take away from different reform curricula are also needed (Smith, Phillips, Herbel-Eisenmann, 1999).

In the 80's, research showed that about half of the students taking Algebra I continued with algebra. Two reasons cited were the pace at which the material is covered and the formal approach often used in its presentation (Herscovics, 1994). The current trend is to present more concrete problems first so the students can begin to analyze and solve before

they meet the abstract problems in the form of equations written in symbols. The problem-solving approach (utilizing problems that have meaning for the students) is advocated by the NCTM Standards. Researchers have found that students succeed more often on story problems and on word equations than on symbolic equations. This would suggest that grounded representations are especially important in the early stages of learning algebra (Koedinger, 1999). As pupils develop skill in problem solving, abstract representations save time and computation.

Courses designed to use computer-based instruction integrated with teacher instruction have emerged in the last decade. This approach emphasizes problem solving. Research dealing with the effectiveness of this approach is scarce at the elementary and middle school level. Lawrence Hubbard, principal in Pittsburg, has been in a school using the Cognitive Tutor for eight years. "Cognitive Tutor learning happens while the students work, keeping them involved all the way. If a problem becomes insurmountable, the computer won't give away the answer. The student will know that he or she can ask for help from the teacher" (Hubbard, 2000). Recently the U.S. Department of Education deemed the Cognitive tutor Algebra I curriculum as one of five "exemplary" programs (Hubbard).

One method of instruction observed in this research was the incremental approach to mathematics used by John Saxon in his texts. In 1982, John Saxon published the results of his experiment in teaching algebra by incremental development. Initially, he reported that ninth- grade algebra students achieved 159% better, on the average, than those instructed using the traditional approach. Moreover, the attitudes toward mathematics of the incrementally- instructed students were also reported to be measurably better (Klingele and Reed, 1984).

One study in which six teachers participated spanned two years. Five out of six teachers preferred Saxon to the traditional method of teaching algebra. In summarizing the data relating to student attitude and performance, "the Saxon group displayed more positive attitudes than did the control group; but the experimental group performed no better than, and perhaps not as well as, the control group in the cognitive domain. It could be that the Saxon text may not provide adequate instruction in theoretical aspects of algebra (Johnson, 1987).

A research conducted 1996-97 involved two Algebra I classes in two different

schools in West Virginia. The experimental group used the Saxon text and the control group used the Fair and Bragg Algebra I text. The results of the study showed that the experimental group performed significantly higher (Clay, 1998).

Methodology

Three different curriculums were investigated. Three classes observed were in North Carolina public schools–one at the high school level and two at the middle school level. The fourth class was in a private school. After the observations, the classroom teachers and other teachers familiar with the method were interviewed. The class in the public high school was an integrated class in which some low achievers had been mainstreamed into the class. In the middle school in which the technology-based curriculum was being used, the students were considered average and above in ability having received "three's" and "four's" (out of four possible) on the tests at the end of seventh grade. Four of the five teachers interviewed were experienced teachers, but only two of the five were North Carolina certified. The inexperienced teacher was a lateral entry teacher. The other two non-certified teachers were math majors at the undergraduate and graduate level.

Conclusion

The purpose of this research was to study three currently used approaches to the teaching of elementary algebra. The most widely used method is the text-based, traditional approach. The daily presentation of material often takes the form of answering the questions on last night's homework, presenting the new material from today's lesson using the board or overhead and working the book examples on the board, assigning a couple of practice problems to be done by the class under teacher supervision, assigning the homework and allowing the students to begin on the homework if there is time. The more modern textbooks have more real life problems and they have many more ideas for the teacher suggesting ways to engage the students in exploratory thinking prior to the teaching of new concepts. The intent is to help the teacher encourage students to be active participants in their learning experience.

The teacher using the traditional text is gifted in classroom control. By effective use of eye contact while writing on the overhead projector, the teacher involved each student in developing and responding to new ideas. Ninety-five percent of the students were on task

during the period. About 75% of them seemed genuinely motivated. The teacher felt her goal of preparing the students for the "end-of-course" test and for further success in math was being realized.

The Cognitive Tutor computer-based curriculum for Algebra I utilizes the idea of bridging the gap between arithmetic and algebra with the introduction first of functions as explored through the use of tables and graphs. The two teachers trained in the three day summer course to use this method cited two major strengths of the computer-based instruction: "hands-on" experience for each student and the opportunity for each student to move at his own pace. Immediate feedback from the computer is seen as an advantage. They also appreciated the emphasis on problem-solving from the very beginning. Whereas, the students are involved in hands-on interactive learning experience in the computer lab two days a week, the other three days, they are to be working in cooperative learning situations in small groups. In the cooperative learning, they investigate problems together, formulate solutions and present their solutions to the class. This cooperative learning is designed to encourage students to learn to verbalize what they are doing symbolically.

The researcher observed that about 50% of the students in the lab were actually on task for the majority of the period. The other students were easily distracted, and some students were unable to make progress on their own. (It should be noted that these were 8th grade students.) In these cases, other students virtually did their work for them, or the teacher "helped" them by telling them what to enter into the computer. It was a challenge for the inexperienced teacher to keep the students focused. However, he felt the technological, hands-on approach was something he could handle.

In the third class observed, the teacher was using Saxon math. The teachers interviewed felt that their goals of preparing students to go on in mathematics were well accomplished using this text. The particular strength of the text is the constant repetition. Of the some 30 problems in each problem set, only the first few cover the new material and the bulk of the problems are review Both teachers have used this approach at least eight years and they believe it to be very beneficial for the average student. They conceded that supplementary materials might be employed to spark the enthusiasm and creativity of the most highly gifted students.

The researcher observed that the students in this fourth classroom were basically on task the entire period. However, it cannot be said that they were excited about what they were doing. During the instruction part of the class, the students did respond when addressed. They were not generating new ideas themselves. This could have been the nature of the lesson or the style of the instructor.

The controversy continues as to who should take Algebra I and at what level. Since the National Council of Teachers of Mathematics have come out with the standards for teaching mathematics in K-12, there will be some changes. There will be a more integrated approach to teaching mathematics and more curriculums will be written to employ these ideas. Finding a good curriculum is important. However, a good curriculum in the hands of a mediocre teacher becomes a mediocre curriculum. A poor teacher can render a good curriculum ineffective. On the other side, a creative, talented teacher can take any curriculum and turn it into a good curriculum. That teacher will use innovative methods and ideas to guide students in the discovery of basic principles and rules. Then the teacher will provide adequate opportunity for the students to become proficient in the use of the principles and rules. At the end of the discovery and the achievement of the mastery of principles, the students will experience success in mathematics. Students experiencing success in mathematics should be the goal of every teacher.

References

Clay, D. (1998). A study to determine the effects of a non-traditional approach to algebra instruction on student achievement. Masters Theses, Salem-Teikyo University. (ERIC Document Reproduction Service no. ED428963).

Herscovics, N. & Linchevski, L. (1994). A cognitive gap between arithmetic and algebra. Educational Studies in Mathematics, 27, 59-78.

Hubbard, J. (2000). Technology-based math curriculums: custom built for today's classroom. T.H.E. Journal, 28, 3, [On-line], 79-84. Available: www.thejournal.com.

Johnson, D. & Smith, B. (1987). An evaluation of Saxon's algebra Text. Journal of Educational Research, 81(8), 97-102.

Kaput, J. (1995). A research base supporting long term algebra reform? Paper presented at the Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, 17, 3-26.

Klingele, W. & Reed, B. (1984). An examination of an incremental approach to mathematics. Phi Delta Kappan, 65(10). 712-13.

Koedinger, K., Alibali, M. & Nathan, M.(1999). A Developmental Model of Algebra Problem Solving: Trade-offs between Grounded and Abstract Representations. Paper presented at the Annual Meeting of the American Educational Research Association, Montreal, Quebec, Canada.

Smith, J., Phillips, E. & Herbel-Eisenmann, B. (1999) Middle school students' algebraic reasoning: new skills and understanding from a reform curriculum. Proceedings of the Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, 20, 1, 190-195.

On Teaching Writing Well:
A Study of Writing Instruction at the High School Level

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Introduction

Over the past thirty years, a substantial body of research on writing has accumulated (Dyson and Freedman, 1991). Through the work of Murray, Graves, and others, writing is viewed as a process, not only a product. As a result, certain strategies for teaching writing have come to be associated with either a product approach or a process approach. We know a great deal about the writing process and writing development, thanks in large part to those who developed or contributed to the process approach. Yet teacher belief and teacher practice in writing instruction continue to vary widely (Gordon, 1996). This ethnographic study seeks to examine the relationship between teacher belief and practice in writing instruction within the context of the product-process dichotomy.

Review of Literature

In the 1970s, research on writing (Emig, 1971) shifted attention from the written product to the process behind the product. A second major shift in research developed a view of the writing process as recursive rather than linear (Dyson and Freedman, 1991). The recursiveness of writing makes it impossible to study or teach the stages of the writing process in isolation. Similarly, it is difficult, if not impossible, to examine writing in isolation from the many factors shaping it, such as past experience with writing, attitude toward writing, and mastery of strategies used in writing. This same relationship of experience, belief, and practice is applicable to teachers. Writing instruction is rooted in the teacher's own conceptualization of the writing process (Fulkerson, 2000). Yet Fulkerson asserts that interference can occur between a teacher's philosophy about writing and the day-to-day activities of the writing classroom. Classroom procedures can become a sort of

shorthand for the writing process itself. The danger in this shorthand is that teachers may lose sight of their underlying beliefs as well as individual student differences and needs.

Much research has been conducted to evaluate the effectiveness of instructional strategies, the assignment of writing, and methods for responding to and assessing student writing. In addition, there is a significant body of research on the connection between thinking and writing (Langer and Applebee, 1987) and the relationship between writing formats and topics and modes of thought (Langer, 1984). While proponents argue that a formulaic format such as the five-paragraph theme helps struggling writers, Wiley (2000) asserts that the controlled format stifles critical thinking.

Wiley (2000) and others talk about taking the mystery out of the writing process for students. In order to do so, teachers first must take the mystery out of the way they teach writing. The objective of this ethnographic study is to explore the relationship between teacher belief and practice in a limited set of English classrooms. Central questions of this study address how the observed teachers teach writing; student response to the strategies used; other activities, efforts, and conditions that support writing development in the classroom; the relationship of teacher beliefs and practices and related factors; and similarities and differences among the observed teachers.

Methodology

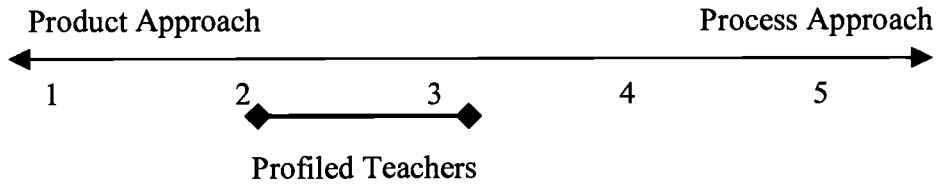
The subjects of the study are four English teachers (one at each grade level, 9-12) in a mid-sized high school located near a relatively urban area of North Carolina. The study has two major components--classroom observations and brief interviews with the teachers. During a four-week period, six classroom observations were conducted for each of the four teachers. The purpose of the observations was to view and record instructional strategies used by the subjects and to observe student response and engagement in those strategies. One-hour interviews were also conducted to collect more in-depth information on beliefs and practices.

Data from the interviews and observations was used to create a profile for each of the four teachers. The profiles reference the following areas: instructional focus in writing; overall instructional style; methods, activities, and techniques used in writing instruction; integration of writing and other areas of literature and language arts; conceptualization of the

writing process; strategies for feedback and evaluation; student response; and barriers, challenges, and concerns in teaching writing. A rubric was developed to analyze the data collected during the observations and interviews. The rubric represents a continuum with the product and process approaches at either pole. A rating scale was used to place the observed teachers along this continuum and to identify similarities and differences among the teachers.

Results and Implications

The four profiled English teachers had distinctive teaching styles that guided how they taught writing, yet there were similarities within their instructional approaches to writing. The teachers shared a general conceptualization of the writing process, and they identified many of the same challenges in teaching writing. In practice, all of the teachers used enabling structures to help students learn to write. A major finding is that format was the dominant enabling structure employed by the teachers, although the purposes and treatment of format varied by teacher. Another significant finding is that none of the teachers adhered strictly to either the process or product approach to writing. Their beliefs and practices represented elements associated with both approaches. In the analysis, all of the teachers fall in close proximity on the continuum.



As a group, they are located near the center of the range but leaning toward the product approach. This finding suggests that the profiled teachers blended the product and process approaches but were somewhat more aligned with the product approach. Overall, the ninth and tenth grade teachers were closer to the product approach on the continuum than the eleventh and twelfth grade teachers. The lower grade teachers used direct instruction within a more structured and narrow curriculum: the mode was the essay, the audience was the teacher, and the writing process was guided. The structured environment, however, was indicative of the teachers' overall instructional styles rather than an alliance with either the product or process approaches. These findings highlight the limitations of studying writing instruction in a product-process vacuum and suggest that the teachers' practices in writing

instruction were influenced by their beliefs about writing, their overall instructional styles, and external constraints such as time and resources.

Despite its limitations, the product-process continuum brought to light similarities across all of the profiled teachers regarding format and feedback. The profiled teachers used format as the principle enabling structure for writing. Every writing assignment given by the profiled teachers dictated either the format or the topic, and most assignments predetermined both to some degree. In the lower grade classes, the focus on format served primarily to support student writing. In the upper grade classes, however, the focus on format was driven by varied factors, including support for student writing, response to literature, and appeal to student interest. For an enabling structure to be most effective, it must move students toward independence from that enabling structure (Milner and Milner, 1999). Additional research through an entire school year would be needed to examine whether and how the scaffolding moved students to independent writing both in terms of format and, more importantly, content.

In addition to the use of format, the profiled teachers shared similar views and practices regarding methods for providing teacher feedback on student writing. In lieu of student conferencing, which was deemed logistically difficult, the teachers focused on providing substantial written feedback on student papers. They also took advantage of or created opportunities to talk informally with individual students about their writing, most often in the form of positive comments at the beginning or end of class on recent writing assignments. In providing written feedback, the teachers employed strategies, formal and informal, to direct student attention to the comments on their papers. Student resistance to revision was identified as a major challenge in helping students learn to write.

Another difficulty in teaching writing, according to the profiled teachers, is that students often write like they talk, which was attributed to the fact that students do not read. The findings of this study suggest that, in addition to other factors, the dilemma of students not reading may be rooted in the classroom and related to writing. The profiled teachers accepted the notion that students write best and most easily about the personal, yet the mainstay of their writing instruction--writing about literature--remained a separate, format-based activity with little relation to the personal. Ideally, this focus on literature would result in students reading, but interest in literature originates in the personal, which has been

assigned second tier status in the classroom as a writing topic and as a way of reading texts. Instead of issues raised through reader response, it was the format that provided the basis for student writing on formal assignments in the observed classrooms. The findings of this study raise two key questions for future research: How can the personal be integrated more effectively into the process of studying and writing about literature? Would the use of personal-based enabling structures focused on creating meaning (in addition to or in place of format-based enabling structures) lead to stronger student writing and increased student motivation to read and to write? This study demonstrates the broader context in which these questions must be considered--a context in which literature and writing are integrated in the course of study and a context formed by the relationship of overall instructional style, external constraints, and teacher beliefs about writing.

References

Dyson, A.H., & Freedman, S.W. (1991). Writing. In J. Flood, J.M. Jensen, D. Lapp, & J.R. Squires, (Eds.) *Handbook of research on teaching the English language arts* (pp. 754-774), New York: Macmillan.

Emig, J. (1971). *The composing processes of twelfth graders*. Urbana, IL: National Council of Teachers of English.

Fulkerson, R. (2000). Four philosophies of composition. In E.P.J. Corbett, N. Myers, & G. Tate, (Eds.) *The writing teacher's sourcebook* (pp. 3-8), New York: Oxford.

Gordon, T. (1996). Teaching writing in the 1990s. *English journal, 85*(6), 28-35.

Langer, J., and Applebee, A. (1987). *How writing shapes thinking: A study of teaching and learning*. Urbana, IL: National Council of Teachers of English.

Langer, J. (1984). The effects of available information on responses to school writing tasks. *Research in the teaching of English*, 18(1), 27-43.

Milner, J.O. and Milner, L. (1999). *Bridging English*. Columbus, OH: Merrill.

Wiley, M. (2000). The popularity of formulaic writing (and why we need to resist it). *English journal, 90*(1), 61-67.

High School Students' Attitudes Towards Math:
Effect of Ethnicity, Gender, and Parents' Education

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Racial disparities in achievement are as much a part of America's landscape as baseball and apple pie. However, research has shown that the large gap between blacks and whites in test scores has narrowed in recent years and must therefore be to an extent malleable (Steele, Ceci, Williams, Kornhaber, Bernstein, Rothstein, Loury, Jencks, & Phillips, 1998).

Though the achievement gap has been documented since at least the 1960s, the opinion that this gap in test scores can be reduced has not always been a source of agreement among those doing research. Ronald Ferguson, a Harvard University economist, thinks that the field of looking at achievement gaps has been under-researched because it is politically "so touchy" (as cited in Viadero, 2000a). As the backlash against affirmative action policies increases, especially in university admissions, decreasing that gap becomes that much more important. If African Americans do not increase their scores, at least with respect to their European American counterparts, the doors to higher education might be closed in their faces, further perpetuating a negative cycle.

Review of Literature

One possible explanation for the achievement gap between African Americans and European Americans are economic disparities, which date back to the legacy of slavery and other forms of oppression that African Americans have endured (Strutchens, 2000). The negative aspects of growing up poor can be numerous, ranging from inadequate health care and nutrition to fewer education resources in the home and in the neighborhood. However, poverty cannot explain the entire achievement gap because grade and test score disparities crop up even in middle-class communities with integrated schools. Obviously, other factors are influencing the gap.

Another possible explanation for the disparities is the differential treatment that African American students receive within the educational system. Schools with predominantly minority enrollments face such obstacles as rigid tracking, lack of challenging curricula, and poor teacher quality. Debilitating teaching practices combined with low expectations from teachers are crippling a nation of potential mathematicians, and this practice is a major disservice to African American students.

Much is made of external factors that influence African American students, but that is not the entire story. The students themselves play a role in their lack of achievement; however, to what extent is unknown. A possible reason suggested by Walker and McCoy (1997) is that "African American student's perceptions of their mathematics performance and the influence of their teachers, families, and peers on the development of that perception may be important factors" (p. 71). Steinberg (1996) asserts that African Americans are far more likely to find themselves in peer groups that actually devalue academic achievement. Low achievers view those who perform well as "acting white" (p.47, Viadero, 2000b). Another related theory is that some minorities have perceptions of scientists and mathematicians as highly intellectual, inflexible, and socially isolated—traits that may not be highly valued in their culture.

Another factor of the achievement gap is Steinberg's (1996) Glass Ceiling Hypothesis. Steinberg maintains that school success is linked to students' perceptions about the likely economic rewards of academic accomplishment. These perceptions differ along ethnic lines. African Americans are more likely to believe that academic success does not have a significant payoff. The reason for this difference could be that African Americans anticipate discrimination and prejudice in the labor force and therefore exert less effort. Another view of this difference in perception is that African American students are less fearful of the consequences of not achieving academically. According to this view, it is "undue optimism, not excessive pessimism" (p.34) that keeps African American students from placing same level of importance on academic accomplishment as their European American classmates.

Student's perceptions have a profound effect on their performance, and more research must be done to investigate student's perceptions, in particular toward mathematics. In a content area where teachers are constantly asked the relevance of the material being studied,

students' attitudes and perceptions are of the utmost importance to study. Also, because the students are being asked their opinions directly, the amount of speculation can be kept to a minimum. It is important however, that researchers remember that the statistics used are just averages and that students of all races can be found at the highest levels of academic performance.

Different reasons have been suggested as to why there may be a disparity in math achievement and interest among African Americans and European-Americans. The purpose of this research is to examine some of the reasons for the disproportionately low achievement and lack of representation of African American students in mathematics. Only through understanding of the reasons behind these disparities can something be done to remedy the situation.

Methodology

To assess perceptions and attitudes toward mathematics, a modified form of the Fennema-Sherman Scales was used (Fennema & Sherman, 1986). The scales used were Confidence in Learning Math, Usefulness of Math, and Math Anxiety. The questionnaire consisted of 36 Likert items on a 5-point scale where the students were asked to agree or disagree with statements such as "Taking mathematics is a waste of time, " or "I'm sure I can do advanced mathematics." It also contained demographic questions to determine gender, ethnicity, and parents' education levels.

The survey was voluntary and anonymous. Randomly selected teachers at two large public high schools in North Carolina administered the survey to all students in their classes who agreed to participate.

Results and Conclusion

Because perceptions of math are thought to influence achievement—and therefore the achievement gap—this study focused on attitude factors: math anxiety, math confidence, and the perception of how useful math will be in the future. In particular, this study investigated whether gender, ethnicity, and parent's educational level had an effect on these perceptions.

Of the 201 respondents to the questionnaire, 81 were male and 111 were female (nine questionnaires left gender unspecified). In terms of ethnicity, respondents were grouped as either African American (n=81), white (n=98), or other (n=20) with two left unspecified. The "other" category was created because some ethnicity categories had very small numbers

of students. It included American Indian, Asian American, Hispanic, and multi-ethnic. There were five categories of parental education level: not a high school graduate (n=13), high school graduate (n=32), some college (n=24), college graduate (n=64), advanced degree (n=54), and unknown (n=14).

Factorial Analysis of Variance was used in order to assess the effects of the factors (gender, ethnicity, and parental education) on the different attitudes toward math. Because math is traditionally thought of male-dominated, gender differences were expected. However, there were no significant differences between males and females on math anxiety, math confidence, or math usefulness. When considering the six levels of parental education, there were no significant differences on any of the three math perceptions. There were also no significant differences among the different ethnicities on math anxiety and math confidence. The only significant difference was between African Americans and whites concerning the usefulness of math, with significantly more positive perceptions for African Americans. None of the interactions among the three independent variables (gender, ethnicity, and parental education) were significant for any of the attitude scales.

On average, whites outperform African Americans in terms of math achievement, so this result was somewhat surprising. This seems to be in direct contradiction of Steinberg's Glass Ceiling Hypothesis, though perhaps he used a much larger sample. It would have been interesting to compare these students' perceptions with some measure of achievement to see if, in fact, perceptions were predictive of achievement for this sample. It was also expected that students whose parents were at a higher educational level would have higher scores on the different aspects of math attitude. This was not the case as there were no significant effects of parental education level. It is possible that the positive effects for a student living with a parent with a higher educational level is countered by a desire in to do better than their parents for other students. Another possibility is that parental educational level is not predictive of high perceptions of math.

In conclusion, it is significant that most of the differences among students were non-significant. This study provides preliminary evidence that student attitudes toward mathematics are not affected by gender, ethnicity, or parental education level. Further research is recommended to determine if this result can be replicated, perhaps in a more economically and geographically diverse setting. It is also important to extend the study to

include achievement in mathematics and to examine the effects of gender, ethnicity, and parental education level on achievement, and also to carefully explore the relationship of perceptions and achievement in the context of gender, ethnicity and economic variables.

References

Fennema, E. & Sherman, J. (1986). Fennema-Sherman Mathematics Attitudes Scales: Instruments Designed to Measure Attitudes toward the Learning of Mathematics by Males and Females. Madison, WI: Wisconsin Center for Education Research, University of Wisconsin.

Steele, C.M., Ceci, S.J., Williams, W.M., Kornhaber, M., Bernstein, J., Rothstein, R., Loury, G.C., Jencks, C., & Phillips, M. (1998). Controversy: The black-white test score gap. The American Prospect [Online]. Available: http://www.prospect.org/archives/41/41jencks.html. Accessed June 22, 2000.

Steinberg, L., Brown, B. B., & Dornbusch, S. M. Ethnicity and adolescent achievement. American Educator, 28-48.

Strutchens, M. E. (2000). Confronting beliefs and stereotypes that impede the mathematical empowerment of African American students. Changing the Faces of Mathematics: Perspectives on African Americans, 7-14.

Viadero, D. (2000a). Lags in minority achievement defy traditional explanations. Teacher Magazine [Online]. Available: http://www.edweek.org/ew/ew_printstory.cfm?slug=28causes.h19 Accessed July 3, 2000.

Viadero, D. (2000b). Bridging the gap. Teacher Magazine [Online]. Available: http://www.edweek.org/tm/tm_printstory.cfm?slug=08blacks1.h11. Accessed July 3, 2000.

Walker, E.N., & McCoy, L.P. (1997). Students' voices: African Americans and mathematics. In J. Trentacosta, M.J. Kenney, (Eds.) Multicultural and Gender Equity in the Mathematics Classroom: The Gift of Diversity, 1997 Yearbook (pp. 71-80), Reston: National Council of Teachers of Mathematics.

The Teaching of Culture in Secondary Level Spanish Classes: The Selection and Implementation of Cultural Topics

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Currently, there is much research to support the relationship between language and culture. Walker and Noda (2000) assert that "Language always operates in a culture" (p.194). Similarly, Pesola (1991) points out that without cultural knowledge, it is often difficult to understand the message that is being conveyed in a language. In fact, many researchers have come to the conclusion that language and culture are interdependent and that one provides access to the other. Therefore, culture should be an integral part of language learning.

Not only is culture important because of its essential role in communicating meaning, but it is necessary in cultivating multi-cultural understanding and tolerance (Abrate, 1993). In a world that is becoming more interdependent and diverse, and in a country whose political and economic systems are becoming increasingly global in nature, we cannot afford to remain ignorant about other nations and cultures (Pesola, 1991; Hadley, 1993).

In order to reflect this increased emphasis on the importance of culture as an integral part of language learning, foreign language teachers should make some changes in their instruction. As Pesola (1991) notes, culture is not automatically transferred simply because one is in a foreign language classroom. Seelye (1993) supports that notion, stating that "Cultural instruction must be purposeful if it is to lead anywhere" (p.29). These new challenges posed to teachers are daunting because the problem of choosing which aspects of culture to include is difficult. Hadley (1993) states that it is ultimately the teacher who must take all of the various viewpoints about culture and its implementation, and choose what to include considering "the practical realities of his or her instructional situation" (p.373).

Review of Literature

One of the reasons that it is difficult to discuss culture is because it is an abstract concept that is not easily defined. Although Seelye (1993) asserts that the most widely

accepted definition of culture is a broad one that refers to all aspects of life, Pesola (1991) states that being knowledgeable about the culture of a people truly means "being able to take on the perspective of an individual from that culture and understand the actions of others and of oneself in terms of that perspective" (p.343).

Once foreign language teachers decide what culture means to them, they use many strategies, techniques, and materials to present cultural information. These techniques and materials include the use of textbooks, video, daily life activities, music, and authentic literature such as newspapers, proverbs, advertisements, articles, and cartoons. (Ramirez & Hall, 1990; Hurley, 1995; Abrate, 1993; Seelye, 1993; Hadley, 1993). In recent times, technology, especially in the form of e-mail and the World Wide Web, has become an important cultural vehicle (Kost, 1999). Other examples of culturally rich resources include native speakers from the community as well as authentic artifacts and réalia such as travel brochures, advertisements, menus, magazines, and consumer product packages (Hadley, 1993). Each of these cultural vehicles can be adjusted to fit into any level of instruction.

Although there are numerous approaches and techniques available to teachers to help integrate culture into the foreign language classroom, each of them can be problematic if used in isolation or if not used appropriately. For example, in a study by Ramirez & Hall (1990) in which high school Spanish textbooks were examined to determine their cultural content, they discovered that in many of the textbooks, certain Hispanic countries were underrepresented, while most of the focus was on Spain and Mexico. In addition, only the upper and middle classes are depicted in most of the books. These books, therefore, would not paint a complete and accurate picture of Hispanic culture as a whole. The use of videos in the classroom as a portrayer of culture is subject to the very same type of bias. As Hurley (1995) notes, many videos created for classroom instruction tend to fit into one of two categories: "National Geographic-like portrayals of the curious customs of some distant culture, or the transformation of the other culture into a miniature replica of our own" (p.91).

Another "trap" about which teachers should be wary is the excessive use of trivia, which only gives the impression that learning is taking place (Seeyle, 1993). Trivia includes isolated facts about a culture that may not be truly important to the overall understanding of a society. Although there are facts that students should learn, this approach is not adequate because it does not paint a complete picture of culture, which is constantly changing.

In addition to the concerns articulated above, teachers who strive to integrate culture and language have many questions to face. One of the most pressing of these questions is the issue of which cultural concepts to include in the language program. According to Seelye (1993), since teachers have different amounts of time, energy, and experience in the target culture, each will use different means to reach the same cultural goals. How do foreign language teachers choose the cultural topics to teach? In this study, the researcher will determine how selected secondary Spanish teachers in one North Carolina county choose the cultural topics that they include and how they implement them in instruction.

Methodology

First, the researcher interviewed eight teachers in the public schools and in three local independent schools. In the results and conclusion portion of this study, the teachers will be referred to as teachers A – H. The participants teach varying levels of Spanish. The ten questions included in the interview were used to gather information about each teacher's definition of culture, how important culture is in his/her classes, how s/he selects which cultural topics to include, and what the desired outcome is of this cultural instruction.

Next, the researcher observed a class taught by each of the eight instructors in order to see how these cultural topics are presented to the students. The researcher also noted what methods and strategies the teacher used to deliver the information and what cultural resources and materials were used or available in the class.

Results and Conclusions

When the teachers were asked what culture means to them on a personal level and also as a foreign language teacher, they suggested various aspects of culture which they feel make up its definition, including geography, history, music, art, traditions, holidays, religion, and family. Some of the teachers also described culture in a broader sense. For example, Teacher B stated that culture is the "way a society behaves."

In the second question, the researcher asked the participants if they considered culture to be an integral part of the curriculum. All eight teachers said "yes." Teachers A, C, E, G, and H explained that one cannot truly understand a language without an understanding of culture. As Teacher E stated, "Communication is not just speaking. You must understand the other person's perspective."

Although all eight teachers said that culture is an integral part of the curriculum, when asked where culture fits into their classes in terms of amount of instructional time, each answered that there really is not a certain portion of time spent on cultural instruction. The majority of the teachers said that they address culture when it presents itself based on what they are studying or discussing at the time. There was, however, mention of various cultural events that are planned in advance. For example, the students in Teacher A's classes present a culturally authentic play each year.

When asked what aspects of culture, in general, are important for their classes, the majority of the participants said that a combination of various aspects is important. Teacher C described culture as an "umbrella" under which all of its aspects are important and interrelated. When asked how they select *which* of these topics to present, given the broadness of culture along with their time constraints, many of them answered that they rely on the topics presented in the textbook. In addition, holidays, festivals, and current events are often topics to be discussed and explored. Teacher D noted the importance of using the *North Carolina Standard Course of Study* as a guide in selecting cultural topics for class. In Teacher C's literature classes, the reading selections raise many cultural issues and topics to be discussed.

The following question asked teachers to provide some examples of both explicit and subtle ways in which they attempt to instill cultural understanding in their students. The participants listed everything from making "churros y chocolate," in order to experience an authentic Hispanic snack, to examining the lyrics of a song by Enrique Iglesias as a reinforcement of what they had learned about the future tense. In terms of subtle techniques, a few teachers pointed out that they are limited in giving authentic greetings, since the traditional Hispanic greeting is one or two kisses on the cheek. Teachers E and H, who have both lived in Mexico, said that they often use cultural gestures in class.

Although all eight of the teachers who were interviewed stated that culture is an integral part of the curriculum, only a very few of them answered a definite "yes" when asked if students are held accountable for culture through any type of formal assessment. The remaining teachers said that there are occasionally a couple of test questions covering a limited amount of cultural material or that they may give extra credit for correctly answering questions on culture.

In response to a question about how teachers determine when their students have developed cultural understanding, most of them stated that acquiring cultural understanding is an on-going process that is never truly completed. However, Teacher F, for example, stated that her students are making progress when they can point out some of the stereotypes that are held by many Americans and realize that they are not always true.

When asked how the teachers themselves had become or are becoming culturally proficient, they gave a variety of responses. For instance, Teachers B, E, and H lived in Hispanic countries for extended periods of time. However, they along with the rest of the participants make efforts to continue their cultural education through making Hispanic friends, travel, workshops and professional organizations, reading, e-mailing, watching Spanish TV, talking with colleagues, taking courses, and exploring the Internet.

Finally, each participant was asked what s/he hoped would be the result of the cultural appreciation that s/he has helped to create in his or her students. All of the responses included the desire that students would grow to appreciate cultural differences rather than to judge them.

It is the observation of this researcher that in Forsyth County, North Carolina, many secondary level teachers of Spanish are making a serious effort to incorporate cultural material as an integral component of the curriculum in their classes. However, this cultural exposure could be more effective if teachers brought it to the forefront by making it more explicit and purposeful. It is critical that teachers plan cultural instruction carefully in advance, giving it the same amount of emphasis as the many other aspects of language.

References

Abrate, J.E. (1993). French cuisine in the classroom: Using culture to enhance language proficiency. Foreign Language Annals, 26(1), 31-37

Hadley, A.O. (1993). Teaching Language in Context. Boston: Heinle & Heinle Publishers.

Hurley, J.K. (1995). Authentic videos in the classroom. Charleston, SC: Proceedings from the Joint Conference of the Southern Conference on Language Teaching and the South Carolina Foreign Language Teachers Association. (ERIC Document Reproduction Service No. ED 384 235).

Kost, C. (1999). Enhancing communicative language skills through effective use of the World Wide Web in the foreign language classroom. Foreign Language Annals, 32(3), 309-320.

Pesola, C.A. (1991). Culture in the elementary school foreign language classroom. Foreign Language Annals, 24(4), 331-346.

Ramirez, A.G., Hall, J.K. (1990). Language and culture in secondary level Spanish textbooks. Modern Language Journal, 74, 48-65.

Seeyle, H.N. (1993). Teaching Culture. Lincolnwood, IL: National Textbook Company.

Walker, G., Noda, M. (2000). Remembering the future: Compiling knowledge of another culture. In D.W. Birckbichler, & R.M. Terry, (Eds.) Reflecting on the Past to Shape the Future, ACTFL Foreign Language Education Series (pp. 187-212), Lincolnwood, IL: National Textbook Company.

Reader Response and Student Motivation

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Major methods of evaluating literature in the classroom tend to fall into one of two categories: analytical response or reader response. Analytical, or paradigmatic, approaches to literature encourage students to distance themselves from text in order to respond in a critical, systematic, traditional manner. In the high school English arena analytical approaches tend to focus on recognizing (and occasionally evaluating) literary elements like theme, plot, point of view, setting, and character. Reader response, on the other hand, encourages students to relate personally to the text; in other words, the teacher encourages his/her students to form a connection between their lives and the literature. The object of this approach is to foster closer student involvement in the text by encouraging students to evaluate literature from their individual perspective. The overall emphasis of this approach is on the student as a unique reader. Examples of this approach include any type of activity/question that encourages students to relate to literature in an individual way, either personally or textually. Often teachers encourage students to relate personally to literature, both in reading and in writing, because they believe reader response will improve student motivation in the English classroom.

Review of Literature

Unfortunately, major motivators for students in the English classroom are based rarely on an appreciation for the literature itself or for the way it affects them personally. In studies involving secondary students, Alan Purves (1993) found that generally students view literature study in the classroom as a process: Complete a text, and then take a test on the material. Instead of being an enlightening experience, many students view literature is something to be ingested, digested, and spit back out. Williams and Alden's study(1983), also investigates the concept of student motivation. Their survey of university freshmen revealed that the majority of the students were motivated more by a fear of failure than a

drive to succeed. The survey also revealed that the majority was motivated most of all by grades. Approaches to literature that encourage students to relate personally to literature are incorporated in part to combat the types of motivational trends described in these studies.

One way in which reader response aims to eliminate the evaluative focus of literary study is to shift the focus away from the idea that there is such a thing as a *correct* interpretation of a text. According to Robert Probst, a leading spokesperson for reader response, the goal of this approach is not to reach a classroom consensus on the interpretation of a text. Rather, reader response intends that individual students be encouraged to form their own individual responses and experience an appropriate personal or textual reading.

Research completed by Beach and Wendler (1987) supports this approach to literature. Their study comparing eighth graders', 11th graders', and college freshmen's inferences about characters in a story shows a significant increase in student awareness of social and psychological consciousness of self in relation to others during high school. As children become older and their individual social awareness develops, this consciousness becomes visible in their responses to literary characters. In light of this research, reader response serves to both accompany and encourage the development of social awareness in young adults.

Reader response requires a certain classroom environment in order to maintain effectiveness. Probst maintains that a cooperative atmosphere must exist in the classroom in order for reader response to flourish. Beach and Wendler (1987) observed that as students mature, they become more capable of inducing or seeing other person's perspectives. Student maturation during the high school years not only encourages the appropriateness of reader response, it also supports the feasibility of the class dynamics necessary for its existence.

Significantly, in a study of ninth-graders' responses to literature, Golden and Guthrie (1986) observed notable divergence with regard to student empathy towards characters. According to Probst, reader response relies heavily upon the respect of student individuality. Because the reader's personal history and initial feelings, associations, and reactions to the text serve as the basis for initially understanding the text, realizing and exploring these factors is crucial in the English classroom.

Romano (1998) describes a classroom approach to literature that responds to the findings of Golden and Guthrie. He advocates narrative thinking as opposed to traditional, paradigmatic thinking in his classrooms. The staple ingredient of his method is the LRP, (literary relationship paper), in which he encourages students to discuss the effect/impact of literature on their lives through writing. He contends that student motivation towards literature increases when value is placed on individual personal responses.

Chandler (1997), discusses the positive effects of community approaches to teaching literature. She relates the creation of a stimulating environment for discussing literature and having students connect literature with their own lives to increased student motivation and enthusiasm towards reading. She writes the article after three years of experience with implementing her methodology in student book clubs and classrooms. She includes student evaluations and feedback that support her approach to teaching literature. Langer's eight-year study (1998), involving ten researchers, fifty teachers, and students found that students placed more faith in classroom activities when there was an overall sense of classroom community and student diversity was valued. She also found that when lower-rated students were engaged in activities that they found to be "personally meaningful," their meaning-building processes were more like those of higher-rated classmates.

This literature reveals the varying nature of student motivation and response to literature, and the need for approaches to teaching literature that acknowledge the individual differences of students. This study aims to observe classroom approaches to teaching literature (specifically those encouraging students to relate personally to literature), and student motivation during lessons in high school English classrooms.

Measures/Procedures

Data was collected during approximately 40 hours of classroom observation. Subjects were four teachers' classrooms in a North Carolina public high school. Specifically, this study focused on determining how often, and in what ways teachers implement methods in English classrooms that incorporate reader response. These targeted practices include, but are not limited to those that place value on the students' identities as individuals and encourage students to relate personally to literature. This study will also concentrate on observing student motivation towards reading, writing, and classroom discussion. Trends of

student motivation and attitude towards learning literature will be noted. General classroom dynamics and environment will also be recorded.

Results and Conclusions

A compilation of data shows that some form of reader response was incorporated in about half of the activities recorded during the forty hours of classroom observation. Observed student motivation towards literature during English classes ranged significantly. Motivation was measured qualitatively by observing classroom phenomena like student enthusiasm, alertness, diligence, attention, and attitude. Student motivation during observed classroom activities was ranked on a scale from very low, to low, moderate, strong, and very high. Student motivation was either very high or strong during two-thirds of the lessons.

One of the main purposes of this study was to record the different types of teaching methods implemented in the English classroom setting. In the English classrooms observed, analytical approaches to literature generally focused on the literary element of plot. For the most part, analytical classroom activities consisted of teachers posing oral questions on plot to the class. Student motivation during these sessions ranged from high to very low, with a concentration on the lower end. One of the most notable findings in this study was the lack of reader response questions. For the most part, when questioning the class as a whole or on a quiz, teachers relied on strictly analytical questions about literature. Teachers demonstrated a noticeable reluctance to ask students to respond individually to texts. They asked for reader response in certain projects and activities, but rarely verbalized the importance of individual response in the question format. Student engagement during other traditional/analytical activities ranged from low to strong, but motivation was most often low.

However, during the remaining half of classroom activities these teachers demonstrated a wide range of lessons that placed value on individual student interpretations of literature. Student motivation during these reader response activities ranged from strong to very high in each case. One teacher used dramatic interpretation as a means of drawing out student interpretations of text. In one instance students wrote and dramatized scripts for a scene from *The Scarlet Letter*. Students demonstrated a strong sense of community and had generally high motivation to complete the assignment. A second activity of this teacher also used drama to make text more relevant to students. Students composed and performed a creative script based on their study of *The Crucible*. Students were energetic during this

class period, laughed a lot, worked together well, and demonstrated an eagerness to share work with one another.Another teacher used reader response to stimulate student creativity during the reading of *Canterbury Tales*. Students wrote their own stories in the style of Chaucer. During work sessions for this assignment, students worked diligently, were eager to share and help classmates, and demonstrated very high motivation towards the assignment.

Although the majority of teacher-posed questions on literature were traditional in nature and rooted in plot elements, teachers did ask reader response questions on occasion. A notable example of reader response questions involved close character investigation of *The Catcher in the Rye*. The teacher posed classroom questions that made the story relevant and accessible to students. Students eagerly offered their personal impressions, referred to particular incidents in the text for support, and showed overall strong motivation to participate in the discussion questions.

Observed student motivation towards literature tended to be either significantly strong or low, with very few instances of moderate or middle-of-the-road attitudes. When dealing with literature, students in this study either became fully absorbed or distanced themselves almost entirely from classroom activities. Although students were highly motivated during some traditional analytical activities, they demonstrated significantly high levels of motivation during almost all activities that incorporated reader response. Results of this qualitative study reveal that reader response is being widely used in the English Classroom. Students became more engaged in literary texts when teachers encouraged classes to respond to texts in ways that valued individual diversity and encourage personal relevance.

Sources

Beach, R., and L. Wendler. (1997). Developmental differences in response to a story. Research in the Teaching of English, 21(3), 286-297.

Chandler, K. (1997). The beach book club: Literacy in the "lazy days of summer." Journal of Adolescent & Adult Literacy, 41(2), 104-115.

Golden, J., and J. Guthrie. (1986). Convergence and divergence in reader response to literature. Reading and Research Quarterly, 21(1), 408-421.

Langer, J. (1998). Thinking and doing literature: An eight-year study. English Journal, 87(2), 16-23

Probst, R. (1986). Mom, Wolfgang, and me: Adolescent literature, critical theory, and the English classroom. English Journal, 75(6), 33-39.

Probst, R. (1988). Transactional theory in the teaching of literature. Journal of Reading, 31(4), 378-381.

Purves, A. (1993). Toward a reevaluation of reader response and school literature. Language Arts, 70(5), 348-361.

Romano, T. (1998). Relationships with literature. English Education, 30(1), 5-18.

Williams, J., & Alden, S. (1983). Motivation in the composition class. Research on the Teaching of English, 17(2), 101-112.

Social Studies Teachers' Attitudes toward End-of-Course Exams

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Introduction

With the intention of raising student and teacher standards and accountability in North Carolina high schools, state legislators adopted a reform agenda that focuses on testing high school students in specific subjects. One of these subjects is social studies. The testing procedure is as follows. After students complete instruction in their *Economic, Legal, and Political Systems* and *United States History* courses, during their 9th and 10th grade years, respectively, they must take an end-of-course exam. To exhort teachers and their students to place value on these exams, it is mandatory that the final grades, of each of these courses, reflect 25% of the actual grade obtained from the end-of-course exam. Depending on the success or failure of the overall scores of their students on the tests, individual teachers, principals, and their schools can either be rewarded by the NC State Department of Public Instruction through salary increases, or ultimately reprimanded by having their school being taken over by the North Carolina State Department of Public Instruction.

Although everyone seems to have an opinion concerning the reform measure, the actual feelings of teachers have been muffled. Thus, considering the heightened emphasis now placed on end-of-course exams and the lack of literature representing teachers' actual feelings toward the exams, the purpose of this study is to provide the reader with a perspective that perhaps has been overlooked—that of teachers. Particular interest will also be placed on if and how the emphasis on end-of-course exams has altered the social studies classroom.

Literature Review

The consensus within the literature relating to end-of-course exams and more specifically, the use of standardized-achievement tests as a means to improve academic standards is negative. Research focuses on several criticisms of the standardized-achievement test movement.

Firstly, studies indicate that achievement tests create ominous competition among students, teachers, and schools, and furthermore, that there is a profound absence of content validity within standardized-achievement tests (Green, 1983; Jongsma, 1972). The fact that there is no consistency associated with the content reflected on standardized tests makes it extremely difficult for social studies teachers to determine what material should be emphasized throughout their course or what material should be skimmed. In other words, though teachers may know what subjects are emphasized on the end-of-course exams, for example the Civil War, teachers have no way of knowing what specifically about the Civil War will be covered on the tests. Considering that teachers have a limited time frame to prepare their students, this leads to unimaginable stress, especially when teachers' ability, their students' knowledge, and their school's image, will be ultimately judged on the basis of the scores on achievement tests (UCLA, 1990).

Germane literature also points out that standardized-achievement tests do not account for cultural differences among students, and therefore do not represent the history, values, language, and experiences of diverse students (NCFOT, 1992a).

It is also argued that the content covered by standardized tests reward the ability to answer superficial questions, and does not promote the ability to think critically and/or analyze and synthesize information (NCFOT, 1992b). The emphasis on superficial thinking forces teachers to stress basic skills and ideas, and further shifts the control of class curriculum under the auspices of the government and away from teachers (Haberman, 1979). Another harm linked to the emphasis on basic knowledge is that the trend hinders creativity for both students and teachers (Herndon, 1975).

Noting the fact that teachers are already being asked to insert materials that are not designed for "cooperative learning" by administrative bodies into their lesson plans, the emphasis on achievement tests would seem to eventually lead to the obsolesce of "cooperative learning" (Slavin, 1999). Cooperative learning focuses on class discussion between students and teachers, and among students. Research also suggests that classroom discussion during high school social studies classes grant students the opportunity to debate themes related to race, class struggle, and other political issues that are commonly viewed as controversial and are often ignored (Singh, 1991). Recitation also tends to develop students' minds more so than lecture-orientated classes (Larson, 1999). Finally, it has also been

determined that high school students are motivated to learn and prefer class discussion to lecture (Sankey, 1999).

Thus, considering these trends, it would seem that legislation to implement standardized-achievement tests as a means to raise learning standards would not be supported by social studies teachers. This study will investigate social studies teachers' attitudes toward end-of-course exams, and determine whether testing has changed their classroom environments.

Methodology

The subjects of this research included twenty-seven high school social studies teachers from four schools located within the Winston-Salem/Forsyth County School System. The teachers who participated in the research were those who currently teach or have taught a course that is/was followed by an end-of-course exam. The selection of the four high schools was based on the intention of providing a gamut of racial, socioeconomic, ethnic, and gender diversity within the teacher population as well as the schools' student populations. The data for this project was accumulated via distributed questionnaires. The questionnaires focused on determining teachers' attitudes toward end-of-course exams by posing questions that relate to their experiences with end-of-course testing. Questions also attempted to determine if end-of-course testing has changed the way in which social studies is taught, and whether it has transformed the classroom environment. The use of questionnaires allowed teachers to maintain anonymity, and enabled the researcher to quantify teachers' general attitudes toward end-of-course testing.

Results and Conclusions

Social studies teachers' responses overwhelmingly support the literature's adverse opinion of the implementation of standardized-achievement tests (or end-of-course tests) as a means to improve education.

Of the teachers who completed the questionnaire, 93% do not believe that end-of-course testing is creating healthy competition among teachers, and 96% claim that testing is not promoting healthy competition among students. In terms of end-of-course testing stimulating healthy competition among neighboring schools, again, 89% of teachers feel that testing creates unhealthy competition among schools.

In relation to whether standardized-achievement tests obtain content validity, teachers again reaffirm the literature. Ninety-six percent of the teachers who participated in the

project think that it is not possible for teachers to cover all of the information that may appear on the end-of-course exam. The data also reveal that all of the teachers who filled out a questionnaire believe that the level of stress experienced by teachers has risen significantly as a result of end-of-course testing, and 74% of teachers also feel that the same was true for students. Moreover, 85% of teachers surveyed did not believe that students' scores on end-of-course tests reflect what students learn throughout the term, and perhaps most revealing, 96% of teachers feel that end-of-course tests are not increasing students' interest in social studies, and according to 89% of teachers, nor are they increasing students' knowledge of history.

The one area in which there is not a clear consensus among social studies teachers pertains to the question of whether standardized-achievement tests discriminate against those students from lower socioeconomic classes and diverse cultural backgrounds. When asked if end-course tests are biased against such students, only 51% of teachers felt that this is the case.

However, the results from the questionnaires did confirm the fear that standardized-achievement tests are detrimentally revolutionizing the social studies classroom environment. For instance, 85% of teachers believe that tests limit class time devoted to class discussion, and 81% think that the emphasis on end-of-course testing decrease the opportunity for students to analyze and synthesize class material. Additionally, 89% of teachers state that as a result of the emphasis on testing, they decrease "cooperative learning" exercises, and 67% of the polled teachers believe that the frequency of rote memorization in the social studies classroom ascended due to end-of-course testing.

And lastly, teachers also feel that the opportunity to employ their creativity in the social studies classroom is suppressed as a corollary to testing. Eighty-five percent of teachers express that testing impedes their creativity, and 89% feel that it is doing the same for students. Perhaps the fact that 96% of teachers feel that they must "teach the test", is one of the reasons why the chances to utilize creativity decreases.

As the data indicate, it is certainly a conundrum as to why local, state, and national governments continue to identify standardized-achievement testing, and relevant to this study, end-of-course testing, as a means to ameliorate public education and/or the study of social studies. Yet, as the responses to this study's questionnaires also point out, it is

palpable that social studies teachers' opinions on the matter were not highly considered before the implementation of testing. For 89% of the teachers canvassed feel that the state did not strongly consider their opinions while deciding whether to introduce testing, and 93% of teachers also feel that the implementation and current emphasis on end-of-course testing is related to "political expediency" on the part of state legislators.

In conclusion, by solely considering that 81% of social studies teachers believe that what is currently thought of as end-of-course should be immediately terminated, it is verifiable that state legislators must review the implications of testing on the dynamics of the high school social studies classroom. Let us hope that this study somehow leads to the facilitation of that taking place.

References

Green, D. R. (1983). Content Validity of Standardized Tests and Test Curriculum Overlap. Paper presented at the Annual Meeting of the National Council on Measurement in Education (Montreal, Quebec, April 12-14, 1983) (ERIC Document Reproduction Service No. ED 235 237).

Haberman, M. (1979). To Test or Not to Test—That is the Question. Paper presented at the Annual Meeting of the National Parent Association Conference (83rd, Milwaukee, WI, June 10-13, 1979) (ERIC Document Reproduction Service No. ED 185 107).

Herndon, T. (1975). Standardized Tests: Are They Worth the Costs? An address to the Commonwealth Club (San Francisco, California, December 19, 1975) (ERIC Document Reproduction Service No. ED 120 255).

Jongsma, E. A. (1972). Viewing Standardized Social Studies Achievement Tests from a Reading Perspective. Paper presented at Annual Meeting of Mid-South Educational Research Association (New Orleans, Louisiana, November 1972) (ERIC Document Reproduction Service No. ED 075 492).

Larson, B. (1999). Influences on Social Studies teachers' use of classroom discussion. Social Studies, 90 (3), 125-136.

National Center for Fair and Open Testing. (1992a). How Standardized Testing Damages Education. Cambridge, MA: Author (ERIC Document Reproduction Service No. ED 352 375).

National Center for Fair and Open Testing. (1992b). What's Wrong with Standardized Tests? Cambridge, MA: Author (ERIC Document Reproduction Service No. ED 352 374).

Sankey, B.E. (1999). Teaching Methods: Seminar versus Lecture. In McCoy, L.P. (Ed.) Studies in Teaching 1999 Research Digest (pp.106-110), Winston-Salem, N.C.: Wake Forest University.

Singh, B.R. (1991). Methods for teaching reducing prejudice and enhancing academic achievement for all children. Educational Studies, 17 (2), 157-169.

Slavin, R. (1999). Comprehensive approaches to cooperative learning. Theory into Practice, 38 (2), 75-81.

UCLA Center for Research on Evaluation, Standards, and Student Testing. (1990). The Effects of Testing on Teaching and Learning. U.S.; California: Authors: Herman, J., Dreyfus, J., & Golan, S. (ERIC Document Reproduction Service No. ED 352 382).

Examining the Political Beliefs and Attitudes of High School Students

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December, 2000

One of the main goals of secondary social studies education is to prepare high school students for participation in the democratic process (i.e., voting for leaders, running for political office, etc.). In order to achieve this goal, educators need to emphasize how the election system works as well as examine their students' political attitudes and beliefs. What factors influence adolescents' political ideas and choices? Current research suggests that the media, family, economic status, and cultural background are strong influences on students' political affiliations (Koch, 1994; Braungart, 1969; Vollebergh, Verbogt, and Raaiijmakers, 1998; Ehman, 1969). The purpose of this study is to examine high school students' beliefs about politics and the influences behind these beliefs. The study will also explore the attitudes of the students about the 2000 presidential election (i.e., the candidates and campaign issues).

Literature Review

Much research on students' political beliefs and attitudes has centered on college students. Koch (1994) examined how daily newspaper reading influenced the political opinions of undergraduates at the University of Texas at San Antonio. One hundred thirty six subjects were measured for political behaviors, interests, and cognitions. Koch (1994) found that students who read the newspaper daily felt more comfortable in discussing their political views. The research also suggested that students were unlikely to contribute to specific campaigns due to lack of financial resources and that "feeling comfortable talking about politics with friends and family is probably one of the few, and may be the only, political activity college students participate in on a regular basis" (Koch, 1994, p.39). Braungart (1969) looked at how college students' political views were affected by social and family influence. Six hundred subjects were studied, and the results indicated that family

political affiliations were the strongest predictor of student beliefs. Braungart (1969) also found that a student's social class played a distinct role in student politics.

Current research has focused more on political attitudes of adolescents and the factors influencing these attitudes. Vollebergh, Verbogt, and Raaijmakers (1998) examined the relationship between moral reasoning and political beliefs of Dutch adolescents and young adults. In this study, 1,968 adolescents/young adults were administered a Defining Issues Test and seven political attitude scales. These scales measured adolescent beliefs associated with equality of income and property; socioeconomic radicalism; tolerance of alternative lifestyles; freedom to express opinions; acceptance of abortion and euthanasia; authoritarianism; and ethnocentrism (Vollebergh et al. 1998). The findings suggested that economic and cultural factors played a distinct role in political attitudes. In addition, Vollebergh et al. (1998) found that adolescents' level of moral reasoning was highly correlated with their level of political conservatism. In addition, a recent survey conducted by the Close-Up Foundation (1999) provided some data about high school students' attitudes toward government and politics. The foundation administered the survey to 501 American high school sophomores, juniors, and seniors. The research indicated that American adolescents are not turned off by politics and were quite excited about the 2000 presidential election, but do not seem to be interested in entering politics or the government sector.

According to Ehman (1969), schools play a crucial role in the political socialization of American high school students. Ehman (1969) writes that "the attitudes and actions of the pupil in a democratic school environment are to be transferred to the society when he [she] becomes a citizen. In school, the pupil is exposed to, and becomes able to critically analyze and deal with, the political and social controversial issues of the day" (Ehman, 1969, p. 559). In one study, school and classroom influence on political knowledge; political attitudes and values toward society and politics; and attitudes toward political participation were examined. The findings suggested that school curriculum was fairly successful in relaying political knowledge to students; however, the courses did not influence attitudes. The research found that social status was the factor that most influenced students' political views (Ehman, 1980). Another study focused on the extent to which students perceived "open" social studies classrooms and how this perception was related to changes in political beliefs. A longitudinal questionnaire was given to 339 students from nine high schools. Results

indicated that open classrooms (where students felt comfortable to express their ideas) did in fact increase the students' interest in politics as well as their trust in political officials (Ehman, 1980).

Methodology

The subjects of this study were 85 randomly selected students enrolled in U.S. History and Economics classes at Parkland High School and R. J. Reynolds High School in the Winston-Salem/Forsyth County public school system. These particular schools were chosen in order to obtain a racially and economically diverse sample. However, gender was the only demographic that was examined as a variable.

Subjects were asked to complete a descriptive, semi-structured questionnaire designed to obtain demographic information as well as information about students' political affiliation, their parents' political preferences, choice of presidential candidate, campaign issues important to them, and factors contributing to their political views. Analysis of the descriptive data examined the percentage of students whose political affiliation was the same as their parents; percentage of students who belonged to certain political parties; and percentage of students who watched political programming. The data analysis also focused on which issues students felt were the most important to them in the campaign and how party affiliation affected these views. In addition, the open-ended questions were analyzed to see which factors contributed the most to the subjects' political beliefs.

Results and Conclusions

Of the 85 students surveyed, 57 were females and 28 were males. Results from the first part of the questionnaire indicated that 47% of the subjects were Democrats, 39% were Republicans, 5% were Independent, 7% preferred another party, and 2% did not answer. A total of 51% of the students selected Al Gore as their choice for president, while 42% preferred George Bush and 7% chose another candidate or did not answer. When asked about frequency of viewing political programs such as *C-Span* or *Meet the Press,* 75% of the subjects answered sometimes, while 18% said that they never viewed these kinds of programs. Only 7% of the students said that they often watched political programming.

The second part of the questionnaire asked the subjects to mark the campaign issues that most concerned them. Education was the most important issue for students who labeled themselves as Democrats and Republicans, while the environment was cited as the most

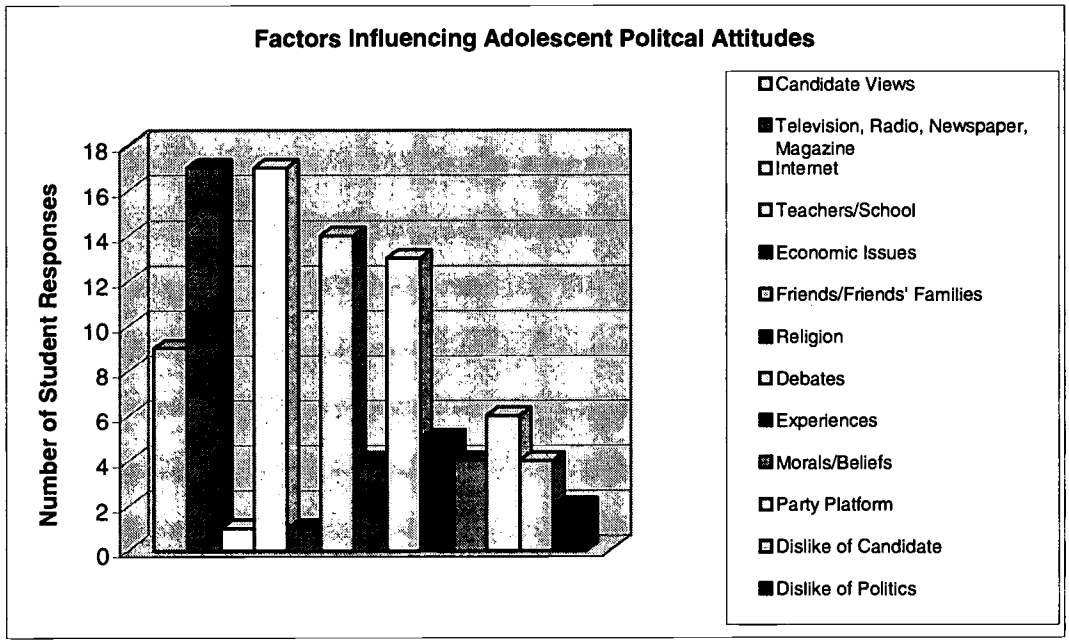
important campaign issue for Independents and other party subjects. Overall, subjects (regardless of political affiliation) considered education, gun control, the environment, and abortion as the issues that were the most important to them as future voters. Campaign finance reform and gay rights were cited as the least important to the subjects. Below is a table of the number of students (categorized by party affiliation) that selected an issue as important to them:

	Republican	Democrat	Ind./Other/Und.	TOTAL
Gun Control	23	27	9	59
Lower Taxes	16	21	8	45
Social Security	11	18	6	35
Health Care	7	22	5	34
Abortion	20	23	6	49
Education	26	35	10	71
Gay Rights	8	10	2	20
Cam. Reform	4	8	2	14
Environment	18	27	11	56
Race Relations	10	26	10	46

The open-ended questions offered some interesting insight into factors that affect adolescents' political attitudes and beliefs. When asked if family influenced their political views, 44.4% of subjects answered "no", 39.5% answered "yes", and 16.1% answered "somewhat". Despite the fact that a good percentage of students did not think family influenced their political beliefs, 71.7% of the subjects had the same party affiliation as their parents. Student responses to the question "What other factors have contributed to your political views" also yielded some interesting results. The most frequently reported factors were forms of media (television, radio, magazines, and newspaper), school (teachers and classes), and friends/friends' families. In addition, the debates and candidate views were cited as important influences on the students.

Surprisingly, only one subject answered that the Internet had influenced his/her political beliefs.

The results of this study suggest that high school students' political attitudes are shaped by a variety of factors. This study provides educators with some helpful insight into how adolescents feel about politics, their party affiliations and opinions on candidates. More



importantly, examining political issues that students are concerned about can assist teachers in gaining student interest in the classroom and preparing them to become socially responsible and critical citizens who take an active role in the democratic process.

References

Braungart, R.G. (1969). Family status, socialization, and student politics: A multivariate analysis. Paper presented at the American Sociological Association Convention. San Francisco, California. (ED035034).

Close-up Foundation. (1999). High School Students' Attitudes Toward Government and Politics [Online]. Available:http://www.closeup.org/surv_sum.htm. Accessed from World Wide Web June 22, 2000.

Ehman, L.H. (1969). An analysis of the relationship of selected educational variables with the political socialization of high school students. American Educational Research Journal, 6 (4), 559-580.

Ehman, L.H. (1980). Change in high school student's political attitudes as a function of social studies classroom climate. American Educational Research Journal, 17 (2), 253-265.

Ehman, L.H. (1980). The American school in the political socialization process. Review of Educational Research, 50 (1), 99-119.

Koch, N.S. (1994). Changing times? The effect of the New York Times on college students' political information and behavior. Social Sciences Journal, 31 (1), 29-39.

Vollegergh, W., Verbogt, T., & Raaijmakers, Q. Moral reasoning and political beliefs of Dutch adolescents and young adults. Journal of Social Issues, 54, 531-554.

How Do High School English Teachers Use Different Levels of Questioning in the Classroom?

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Introduction

According to Bloom's Taxonomy (1956), there are six cognitive objectives for student behavior. These are placed in a hierarchy, moving from the most basic behaviors to the most advanced. The six objectives include knowledge, comprehension, application, analysis, synthesis, and evaluation. The types of questions which teachers ask can fit into this system of classification. As teachers move up the hierarchy into the higher-order questions, a deeper and more critical response from the student is needed to meet that objective. Therefore, the classification encourages teachers to use a full spectrum of questions. Students can then be challenged to probe an issue's many possible dimensions. However, do teachers really explore all the levels of questioning despite the research?

Review of Literature

While the field of education every year continues to grow in its conceptions of the best way to teach children, teachers have been using a particular tool for centuries- the question. For many years, educational professionals have viewed teacher questions as highly influential in shaping the thinking and behavioral skills of students. Researches often refer to the attention Socrates gave to questioning thousands of years ago (Crump, 1970; Ellis, 1993). DeGarmo (qtd. in Ellis, 1993) wrote in 1911,

> To question well is to teach well. In the skillful use of the question more than anything else lies the fine art of teaching; for in it we have the guide to clear and vivid ideas, the quick spur of imagination, the stimulus to thought, the incentive to action. (p.179)

Within the past fifty years, researchers have opted to define questions in terms of taxonomies. These systems of classification rank questions based on the level of thinking

they demand from the students, usually on a scale ranging from convergent to divergent thinking. The most widely recognized means of categorization is Bloom's Taxonomy (1956). His criterion for classifying questions is based on the cognitive demand they place on the student. The descriptors for each level of question, listed from lower-order to higher-order, are knowledge, comprehension, application, analysis, synthesis, and evaluation. These operate under the same assumption that different questions require students to use different cognitive functions.

Questions are important for several reasons. The reason that researchers most frequently discuss is the stimulation of cognitive thinking. In their extensive study, Cole and Williams concluded that "the cognitive level, length, and syntax of the pupil responses are highly contingent upon the cognitive level of teacher questions" (144). Their study provides empirical evidence for the assertion that the cognitive levels of teachers' questions and the level of students' responses are strongly related. Wassermann (1992) believes that teacher questioning "is at the heart of effective classroom teaching;" in fact, like DeGarmo, she refers to the wise use of questioning as an "art" that generates a "rhythm" in the classroom (p. 8).

Despite the abundance of research on the importance of questioning, many researchers have found that teachers still refrain from utilizing the higher-order questions (analysis, synthesis, and evaluation), and more often ask the less challenging questions (knowledge, comprehension, and application). Crump (1970) reported, "Although [teachers] have the capability of initialing critical and creative thinking, many questions focus upon memory of specific facts" (p. 657). Gall (1984) concurs that the "recitation method" is of great popularity in schools: "About 60 percent of teachers' questions require students to recall facts; about 20 percent require students to think; and the remaining 20 percent are procedural" (p. 42). Brualdi (1998) believes that lower-level questions are limiting, for such questions inhibit students from seeking a deeper understanding of the subject. In fact, she asserts that only higher-order questions can truly assess whether a student has mastered the concepts. Wassermann (1992) cleverly suggests that more challenging questions cause the mind to "buzz," thus inciting students to think intelligently, creatively, and divergently about a subject (p. 20). Researchers have also attempted to explain why teachers might not consider the importance their

questions have on the critical thinking skills of their students. Crump (1970) suggests one reason is the relative comfort in the act of questioning (p. 657).

The importance of questioning in the classroom is not to be understated. Many researchers have endeavored to resolve the problems with questioning techniques. However, despite thorough research, it is obvious that teachers and other educational professionals have not fully recognized the benefits of mindful questioning. In my study, I closely examined the questioning techniques of a small selection of teachers in order to cognize the role of questioning in the classroom. As I made my observations, I considered the following questions:

1) What are the types of questions English teachers use in presentations and class discussions? Which type of question do teachers use the most?
2) To what extent do teachers move between levels of questions and what kind of sequence do they use?
3) How does the type of question influence students' engagement with the material?

Methodology

Subjects

The subjects for this study are two English teachers at a public high school in North Carolina. I was a non-participatory observer in one class for each teacher. Both of these classes were ninth grade Honors English, each consisting of approximately 25 students.

Procedures

The data collection procedure was in the form of observations. I took extensive field notes on the types of questions the subjects asked, recording the questions verbatim. I also obtained copies of handouts the teachers gave to the students during my period of observation (these included study guides, worksheets, and quizzes). Any questions written on the chalkboard or overhead were also transcribed. Along with gathering the questions the teachers posed, I recorded the student responses. I also made make general observations about the structure and atmosphere of the class.

The data was analyzed in a narrative format. I interpreted the fieldnotes by discussing the level of questioning that each teacher used most often. I compared and

contrasted the different teachers' questioning habits. I also wanted to find a relationship between the types of questions the teachers asked and their students' responses and engagement.

Results and Conclusions

The two teachers that I observed for my study are referred to as teacher A and teacher B. During the period of my observations, both subjects were teaching Homer's epic poem The Odyssey.

During the periods that I observed, teacher B asked more higher-order questions than did teacher A. Even though teacher A asked more questions, hers for the most part can be classified in Bloom's taxonomy as meeting the cognitive objectives of knowledge and comprehension. Teacher B asked knowledge and comprehension questions as well, but she moved up the taxonomy more often than did teacher A to questions that met the cognitive objectives of application, analysis, synthesis, and evaluation.

In both classes, students volunteered to respond to questions. However, since the majority of teacher A's questions were plot-based, students in the class did not need any think time. They often answered quickly and correctly. The second class was just as motivated as the first to answer questions, but they took more time gathering their thoughts for the deeper inquiries. Teacher B did not express the need to make sure that her students knew every detail of the Odyssey. If students were confused about some aspect of the plot, they were comfortable enough to ask for clarification.

The questioning tactics of teacher B run contrary to those of teacher A. Teacher B has a greater awareness of the need to ask questions that have higher cognitive demands on her students. Even when teacher B did not ask her students higher-order questions, their tendency was to think critically. The fact that students volunteered to think critically signals that the students have grown accustomed to teacher B's higher-order challenges.

This sample of English teachers reflects that educators have a lot of control over the critical thinking skills of a class. It shows that while some teachers may be fully aware of their questioning techniques, others might believe they are challenging students by asking any level of question. Although students participate when teachers ask fact-based questions, it does not mean that the material has been made meaningful to students.

Cardellichio and Field (1997) suggest that questions have the potential to overcome the brain's natural tendency to limit information by expanding brain capacity (p. 34). However, I would add that questions also serve to perpetuate the focus on facts over analysis, synthesis, and evaluation. Either way, the power of the question can determine the intellectual atmosphere of a class.

Wassermann (1992) appropriately identified questioning as the "heart" of instruction (p. 8). Yet, despite these researchers' well-founded insistence on the importance of challenging questions, teachers still deny their students the possibilities found in creative questioning. This study has reinforced the importance of what DeGarmo knew in 1911: "To question well is to teach well" (p. 179).

References

Bloom, B. (Ed.). (1956). Taxonomy of Educational Objectives, the Class of Educational Goals, Handbook I: Cognitive Domain. New York: David McKay Company.

Brualdi, A. (1998). Classroom questions. Washington, DC: ERIC Clearinghouse on Assessment and Evaluation.

Cardellichio, T. & Field, W. (1997). Seven strategies that encourage neural branching. Educational Leadership, 54(6), 33-36.

Cole, R. & Williams, D. (1973). Pupil responses to teacher questions: Cognitive level, length, and syntax. Educational Leadership, 31(2), 142-45.

Crump, C. (1970). Teachers, questions, and cognition. Educational Leadership, 27(7), 657-660.

Ellis, K. (1993). Teacher questioning behavior and student learning: What research says to teachers. (A paper presented at the 1993 convention of the Western States Communication Association).

Gall, M. (1984). Synthesis of research on teachers' questioning. Educational Leadership, 42(3), 40-47.

Wassermann, S. (1992). Asking the right question: The essence of teaching. Bloomington, IN: Phi Delta Kappa Educational Foundation.

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