TEACHING AND LEARNING WITH TECHNOLOGY:

REFORMING THE ALGEBRA CLASSROOM

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ABSTRACT

Innovations in classroom technology have pervaded the classroom; however it has had little impact on the core mechanisms of teaching in the mathematics classroom. This article explores the current state of algebra instruction and the ongoing call for curriculum reform. It highlights the serious problems that have been identified regarding the effectiveness and appropriateness of traditional algebra and the importance of finding workable alternatives in light of the current emphasis on algebra for all. In the classroom, the view that only a few need or can do higher mathematics is no longer appropriate in a world that increasingly demands a problem solving disposition and a facility with quantitative information. The ubiquitousness of technologies in the classroom can be harnessed to change the teaching and learning paradigm.

A function-based approach to algebra is briefly described and the promising results of the author’s action based research using a function-based approach with an at-risk target population is reported. The author draws conclusions and suggests the need for further research.
INTRODUCTION

The teaching and learning of beginning-level algebra courses is a top priority for improvements for all Texas high school mathematics teachers and administrators. Algebra is recognized as the “gatekeeper” of all high school mathematics; as a prerequisite for all advanced mathematics, success with algebra often determines whether or not a student continues in the study of mathematics. An understanding of algebra is also necessary for the study of many other disciplines and certainly in the world of work.

The high stakes testing requirements associated with No Child Left Behind and the State of Texas Assessments of Academic Readiness (STAAR) add urgency to the issue and have, unfortunately, resulted primarily in teaching to the test. While some gains in test scores may have been achieved in the short term, the impact on real algebraic thinking in mathematics classrooms today is problematic. The effectiveness and the appropriateness of the current algebra practices have long been in question. Serious problems have been identified: procedural and manipulative skills are emphasized; the development of broad conceptual understandings such as variable and function are often neglected; and, attempts at inquiry-based learning fall anemic. The guidelines of the National Council of Teachers of Mathematics Standards (1989, 2000) address these deficiencies but, unfortunately, implementation of the Standards has not been realized on a broad scale in classrooms.

And, so, the call for mathematics curriculum reform continues. Algebra, as the core course of secondary mathematics, is a primary focus of the debate: what will be taught? how will it be taught? what kind of learning is desired and how is it evidenced? It is clear that students can be taught to “do” algebra without conceptual understanding; that is, they can learn to use rules and procedures to arrive at a “correct” solution without knowing why what they are doing works. Writing almost a century ago, Dewey (1910, pp. 51 - 52) could have been describing the typical classroom of today:

Sheer imitation, dictation of steps to be taken, mechanical drills may give results most quickly and yet strengthen traits likely to be fatal to reflective power. The pupil is enjoined to do this and that specific thing, with no knowledge of any reason except that by so doing he gets his result most speedily; his mistakes are pointed out and corrected for him, he is kept at pure repetition of certain acts till they become automatic.
REFORM ISSUES

Several issues arise out of the algebra reform debate. One important issue is the purpose of problem solving or inquiry-based learning. It is both a process and a goal of instruction. As a process, problem solving ensures that students are actively involved and students are responsible for their own learning; students then have an opportunity to create their own conceptual understanding.

Prominent mathematics educator Richard Skemp differentiates the two kinds of understanding: Conceptual understanding is “knowing both what to do and why” while procedural understanding is merely knowing a rule and having the ability to use it, or “rules without reasons” (1978, p 9). Skemp also outlined the benefits of each. Procedural knowledge gives immediate and apparent results (correct answers). Conceptual understanding develops more slowly, over time and with experience; it is more likely to be remembered and is flexible in that it is transferable to new or different tasks (1987). It is a difference in the nature and depth of understanding as evidenced by how effectively students can use what they have learned.

Two other fundamental issues in algebra instruction are (a) the extent to which students must perform various manipulative skills by hand using paper and pencil and (b) the role of functions and when and how they are learned (House, 1988). Despite many reform initiatives, most researchers and practitioners agree that there has been little progress to date. Simply put, practice has not aligned with the vision; most classrooms remain traditional in nature. Changes in content, methodology, and environment have primarily been cosmetic in nature and limited in scope. The emphasis remains on procedural skill development rather than on deeper and broader conceptual understanding. For example, students continue to be drilled on the manipulative rules for simplifying expressions and solving equations. And, the study of function is still treated as an isolated topic rather than as the central and unifying concept of all of mathematics.

IMPORTANCE OF THE FUNCTION CONCEPT

Functions, or the relationships between quantities, are pervasive in real life and are useful in modeling real world situations. Because of the prominence of functions throughout mathematics and because of the unifying aspect of functional relationships, greater consideration should be given to the concept of function. Schwartz states that “the focus of school algebra should be the concept of function” (NCTM, 1992, p. 6)
The role of functions in higher mathematics, such as calculus, topology, analysis, and advanced algebra, is recognized but its importance has not been emphasized in the traditional Algebra I course at the secondary level. However, the function concept, coupled with available technology, appears to have potential for expanding the mathematical understanding of beginning algebra students.

THE ROLE OF TECHNOLOGY

Technology has changed the way mathematicians do mathematics and the way others use mathematics. It is time for algebra instruction to reflect these changes. The advent and availability of computers and graphing calculators dynamically affect both what mathematics needs to be taught and how it is taught. The inquiry method of learning is facilitated when computers and calculators, by handling the calculations, free up time for students to hypothesize, explore, and analyze. And, the array of problem solving possibilities is richer: more realistic and complex. This enables a shift in emphasis from skill development to conceptual understanding.

Technology now makes a function-based approach to algebra feasible. While computers offer certain advantages, the graphing calculator is more widely available and does provide the graphical and numerical representations to support the function-based approach. The technology should not be the focus of instruction, however; it is merely a tool to be used to help mathematics educators meet the important goals of mathematics instruction.

FUNCTION-BASED APPROACH

Function-based algebra is characterized by (a) a inquiry-based approach, (b) an emphasis on function as the object of study, and (c) the use of multiple representations of functions, via technology, to develop a deeper and broader understanding of algebraic concepts. Functions become the conceptual framework used in the problem solving process. The traditional basic concepts of Algebra can be presented in an integrated environment in which symbolic, graphical, and numerical representations of functions are introduced and linked together. And, because functions are represented throughout mathematics and may be explored in multiple ways using computing utilities, they provide a basis for enhanced algebraic reasoning (Yerushalmy, 1996).

ONE SUCCESS STORY

This research project took place in a large suburban high school and investigated the effects of a function based approach to algebra on the achievement
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and understanding of at-risk ninth graders. These students were identified as at-risk for failing algebra based upon their prior achievement records and test results; they were also identified as potential drop-outs.

The project was based on three tenets: Function was the object of study; it was explored through modeling and meaningful problem solving; and multiple representations via technology (TI-83) were used to develop an understanding of algebraic concepts. Two similar groups of students were studied; one group participated in a function-based approach to algebra for one semester while the other group continued with the traditional algebra curriculum.

Analysis of student achievement, as measured by the Texas Algebra I End-of-Course Examination, revealed that 44 percent of the function-based approach (FBA) group met the minimum expectations which was in line with statewide results of 45 percent; only 17 percent of the traditional algebra group passed. This is especially interesting when one considers that the FBA Group consisted of a population (minorities, low socio-economic status, at-risk) that traditionally underperforms and that they received no direct instructional preparation for the test. This is in contrast to what has happened in most classrooms in response to the relentless pressure to improve test scores. Instruction had been very focused (and narrow) as teachers became more familiar with the content of the test and materials were developed to teach the test. The results of this study give credence to the rhetoric that teaching “past the test” results in better performance than “teaching to the test.”

Interviews with selected students revealed that the overall achievement of the FBA students was enhanced by differences in the way they approached problems and in the broadening and deepening of their mathematical understanding as a result of the function framework. Through the integration of the various representations, connections were made across the curriculum that positively affected their knowledge and skills. The students demonstrated flexibility in using alternative strategies and an ability to transfer prior knowledge to new and different situations.

The students in the traditional algebra group were unable to invoke alternative approaches to problems or to qualify the correctness of answers. They inconsistently applied the rules they had rehearsed over and over.

CONCLUSIONS

The philosophical questions, “Do all students need mathematics?” and “Can all students learn quality mathematics?” must be answered by the mathematics
education community. An elitist view, that only a few need or can do mathematics, is no longer appropriate in a world that increasingly demands a problem solving disposition and a facility with quantitative information.

The current emphasis on algebra for all requires a rethinking of the algebra curriculum and methodology. Traditional instruction has filtered out significant populations of students, especially persons of color and low socioeconomic status, from the opportunity to pursue higher mathematics and from occupations requiring mathematical literacy. And while technology has radically changed the everyday lives of all Americans, it has not made a comparable impact for students in mathematics classrooms.

A function-based approach to algebra addresses these issues. Function has the potential to unify the curriculum and allow students to develop a deeper conceptual understanding of mathematics. Aided by technology, the visual display of the graphical and tabular representations permits new connections across the curriculum and problem solving becomes a sense-making endeavor. And, importantly, the changes in the classroom environment necessitated by a function-based approach encourage students to reflect on what they are doing and why they are doing it. Communication about the processes used and insights gained naturally follows.

The problems in algebra instruction are complex and the solutions are not simple or easily implemented. Knowledge about best practices must accumulate before any real progress can be made in realizing the vision of standards-based reform.

REFERENCES


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ABSTRACT

Is there hope for a stock broker convicted of insider trading after spending years in prison? How does a convicted felon, who lost everything, come back, repeat their crimes, and make millions? Derrick Brummett and Kristin Grantham together propose a business case which examines the ethical undertones and messages presented in two Hollywood films and their correlation to real world ethical issues often present in today’s stock market. The films examined in this case include the 1987 and 2010 films directed by Oliver Stone, “Wall Street” and “Wall Street-Money Never Sleeps”. The case asks the audience to contemplate and analyze ethical behaviors and situations presented in these Hollywood films and their relevance and correlation to real world events, situations and personalities as well as the effect they have on society and business. We also pose the question to students about greed and the constant place it holds in human nature. We will argue that human nature will never change, and that it doesn’t matter how many regulations are passed, greed will remain constant in human nature, and humans will find a way to get the things they want. Students are required to watch both “Wall Street” and “Wall Street-Money Never Sleeps”. A list of website references is included for students to perform the necessary research. We have prepared a list of questions that will challenge students to explore the ethical choices made by the characters. This case is directed to accounting students enrolled in ethics courses, preparing to take a certified examination.
**INTRODUCTION**

During the 1980’s greed was viewed as immoral, but was in most cases tolerated. In the 1987 movie “Wall Street directed by Oliver Stone, there are many ethical issues related to situations in society at the time. Ivan Boesky and Michael Milken were among the many individuals who left a legacy of greed during this time. Again in 2010, Oliver Stone got the chance to examine ethical issues when he directed the movie “Wall Street-Money Never Sleeps.” And still, this was a time of greed and scandal, only now it is no longer tolerated and is illegal. Twenty years from now will anything really be different? New laws are made, new laws are broken, but in the end, people are people and greed will always be a part of human nature.

**FACTS OF THE CASE**

1987 WALL STREET MOVIE

- Bud Fox is a young junior stockbroker at a Wall Street stock and trading firm in New York City. Fox is desperate to become involved with his hero, Gordon Gekko, a ruthless Wall Street player. Fox finally gets his chance to meet Gekko using information he received from his father about Bluestar Airlines to impress Gekko.
- Gekko tells Fox that he wants continuous insider information, obtained by any means necessary, even if it means using unethical and illegal methods. Fox’s first assignment, to spy on a British corporate raider, Wildman, and figure out his next move. Fox provides the information to Gekko.
- Fox wants to improve Bluestar Airlines, and persuades Gekko to buy and expand the airline. All is well until Gekko double crosses Fox, and intends to sell off all of Bluestar’s assets leaving the staff, including Fox’s father, unemployed. Fox decides to destroy Gekko.
- Fox and the union leaders meet with Gekko’s rival, Wildman, who agrees to take over Bluestar, and save it from being asset-stripped. After some wheeling and dealing by Fox, Gekko decides to cut his losses and get out of Bluestar. The price has dropped so low that Gekko sales at a loss and loses millions. Gekko knows that Fox is to blame.
- Fox arrives at work to find that the police and the SEC are waiting to arrest him. Some time later, Fox confronts Gekko allowing him to mention several of their illegal business transactions. Fox, wearing a wire, implicates Gekko in illegal activities and Gekko is arrested.

IVAN BOESKY

- Ivan Frederick Boesky was born March 6, 1937. He is an American stock trader who is notable for his prominent role in a Wall Street insider trading scandal that occurred in the United States in the mid 1980’s.
- Boesky graduated from Detroit College of Law in 1965.
- Ivan married Seema who was the daughter of Ben Silberstein, a real estate mogul. Ivan became chairman of The Beverly Hills Hotel Corp. after the death of his father-in-law, who had run the company for over 25 years. The Silberstein fortune also aided Boesky in being able to start his own arbitrage firm in 1975.
Boesky’s specialty was trading stock in companies that were targeted for takeover. This was a legal enterprise as long as the trade was based on public knowledge of imminent acquisitions.

Boesky gained notoriety for performing stock acquisitions that were brazen and sometimes only a few days before a corporation announced a takeover. This notoriety caused the U.S. Securities and Exchange Commission (SEC) to begin investigating him. On November 14, 1986, the SEC charged Boesky with illegal stock manipulation based on insider trading. In return for leniency, Boesky allowed the SEC to secretly tape his conversations with junk bond dealers and takeover artists, including Michael Milken.

As a result of a plea bargain, Boesky was sentenced to three and a half years in prison and ordered to pay $100 Million. Ivan was released after only two years, but was permanently barred from working in securities.

After leaving prison, Boesky enrolled in rabbinical studies and became involved in projects helping the homeless. Since then, Ivan Boesky has stayed out of the spotlight.

Many believe that the character Gordon Gekko is based on the life and crimes of Ivan Boesky. Gordon Gekko’s company mimics that of Ivan Boesky’s.

MICHAEL MILKEN

Michael Milken was born on July 4, 1946. He is an American business magnate, financier, and philanthropist noted for his role in the development of the market for high-yield bonds (junk bonds). Milken was a Phi Beta Kappa graduate of Berkeley University and also received his MBA from the Wharton School of Business.

At the age of 40, Milken was the senior executive vice president of Drexel Burnham Lambert.

Michael Milken became a principal target of the SEC’s insider-trading probe thanks to the cooperation of Ivan Boesky. Milken was indicted on 98 counts of racketeering and securities fraud in 1989. After a plea bargain, he pled guilty to six counts of securities and reporting violations.

Michael Milken was sentenced to ten years in prison and permanently barred from the securities industry. After cooperating with the SEC and providing testimony against his former colleagues, his sentence was reduced and Milken was released after less than two years.

After a couple of years in prison, Milken tried reinventing himself into a leader in business education and crusader against cancer. He helped initiate Bizmore, a website dedicated to educating executives at small and medium sized companies on topics relevant to today’s growing companies. He also has his own website where he describes himself as a medical research innovator, philanthropist and financier.

In the 1987 movie “Wall Street”, the character of Bud Fox has similarities to Michael Milken. Gordon Gekko tips the authorities about some of the illegal activities of Bud Fox. Similarly, Michael Milken was implicated by Ivan Boesky.

DREXEL BURNHAM LAMBERT

Securities issued by firms with low credit ratings or junk bonds, offered high yields because of the risk involved. Drexel Burnham Lambert dominated the $120 Billion junk bond market, making it the most successful Wall Street firm in the 1980’s. Drexel managed to keep the junk bond default rates low by persuading investors to accept an exchange offer that refinanced the debt from faltering companies built on junk bond capital.

After Ivan Boesky cooperated with an SEC investigation, Michael Milken and Drexel Burnham Lambert became principal targets of an insider-trading probe.

In September 1988, the SEC filed a 184-page complaint against Drexel. Rudy Guliani, Manhattan’s U.S. District Attorney, hit Drexel with racketeering charges under the 1970 Racketeer Influenced and Corrupt Organizations (RICO) statute. On December 21, 1988, Drexel pled guilty to six felony counts of mail, wire, and securities fraud and paid a $650 Million settlement.

SARBANES OXLEY ACT (SOX)

The Sarbanes-Oxley Act came into force in July 2002 and introduced major changes to the regulation of corporate governance and financial practice.

The act is named after Senator Paul Sarbanes and Representative Michael Oxley who were the main architects.

The act set a number of non-negotiable deadlines for compliance. It also established an over-arching public company accounting board (PCAOB), which was introduced amidst a host of publicity.

The Sarbanes-Oxley Act is arranged into eleven “titles”, with the most important sections considered to be 302, 401, 404, 409, 802, and 906.

2010 WALL STREET – MONEY NEVER SLEEPS

Jake Moore is one of Keller Zabel Investments’ top brokers and the protégé of its managing director, Lewis Zabel. Jake receives a $1.5 Million bonus. While celebrating with a friend, he hears rumors that Keller Zabel is in danger, but Jake brushes it off.

Zabel meets with the chairmen of the US Treasury at the Federal Reserve. He tries to arrange a bailout but he is blocked by Bretton James, who offers to purchase Keller Zabel stock for $3 a share.

The next day Zabel jumps in front of a train, killing himself. Jake hears the news of Zabel’s suicide on the television, and is devastated.

A few weeks later, Jake attends a lecture given by Gordon Gekko and hears what Gekko has to say about the current financial crisis. Gekko adamantly reveals that in his opinion the unrestrained speculation will cause a financial cataclysm, even though everybody is euphoric about the current financial bubble. After the lecture ends, Jake approaches Gekkoto tell him that he is going to marry his daughter Winnie. The trading starts there. Gekko tells him that he will trade Jake for a more recent photo of his daughter, as he has not seen her in years. He also tells Jake that Keller Zabel was in trouble the moment the rumors were started. He advised that Jake should look for whoever profited from the collapse, Bretton. The two decide that Jake will help Gekko communicate with his estranged daughter, and in return, Gekko would help Jake collect secret information to destroy Bretton.
With the help of Gekko, Jake does some digging and realizes that Bretton James profited from the collapse of Keller Zabel. In order to get James’ attention, Jake spreads false rumors about Bretton’s company causing losses of $120 Million. During a meeting, Bretton tells Jake that he has impressed him and offers him a job, making it clear that he will take the job or Bretton will make sure Jake never works anywhere else. Determined to take Bretton out and avenge Zabel, Jake accepts.

After giving Gekko the photo that Jake promised, Gekko tells Jake that his research pointed out that a fund called, the Locust Fund, a private offshore hedge fund was betting against Keller Zabel. Gekko tells Jake that he suspects it was Bretton’s testimony that got him sent away for eight years. Jake confused, assumed that it was Bud Fox who put Gekko away after Fox’s insider trading trial. He and Bretton had a falling out, and though he isn’t sure, he suspects that Bretton was behind it.

Jake tells Gekko that he and Bretton had an argument and that Jake quit. Gekko reveals that his daughter Winnie has an account in Switzerland with $100 Million that Gekko set up for her when she was born. Winnie never declared it, so if she gets the money now, she could go to jail for tax evasion. Gekko tells Jake that he can embezzle it with his old contacts. Winnie agrees to get the money and the two fly to Switzerland. Jake then entrusts Gekko with the money so that he can legitimize the funds. A few hours after arriving back in New York, Jake gets a call that the money never arrived. Jake goes to Gekko’s apartment to find it empty and Gekko gone.

Over the next few weeks, by using the previous information collected by Gekko about Bretton, Jake begins piecing together everything from Keller Zabel’s collapse to the economic bailouts being issued for Bretton’s company. Jake points out that Bretton owns the Locust Fund and puts the pieces together in one large information packet. He gives it to Winnie, telling her that it will put her website on the map for good as a legitimate source of information. Winnie runs the story and Bretton James is exposed.

BEAR STEARNS

Bear Stearns was founded originally in 1923 by Joseph Bear, Robert Stearns, and Harold Mayer as an equity trading house. In 1957 a partnership was organized becoming Bear Stearns & Company and Subsidiaries. Later in 1985, Bear, Stearns & Company, Inc. was created.

The original company was founded with only $500,000 in capital, and began trading in government securities. It soon became a leading trader in the arena.

Trading fell off sharply when the New York stock market crashed in 1929, and although Bear Stearns suffered setbacks, it managed to survive. As the country struggled out of the Great Depression, Bear Stearns entered into the bond market to promote President Roosevelt’s call for renewed development of the nation’s infrastructure through the New Deal.

During the period following Roosevelt’s reform measures, the nation’s banking system had accumulated large amounts of cash. At the same time, bonds were very cheap and Bear Stearns made its first substantial profits by selling large volumes of these bonds to cash-rich banks around the country.

Through many risky business ventures throughout the mid-1900’s, Bear Stearns proved that it was a risk taker. Bear Stearns’ willingness to take risks pushed it to the forefront of corporate takeover activity.
In October of 1985, Bear Stearns announced that it would make a public stock offering in an attempt to increase the company’s ability to raise capital to finance larger trades.

In 1997 Bear Stearns became the focus of negative attention when it came under investigation by the SEC for its role as a clearing house for a smaller brokerage firm. After a two-year investigation, it settled civil and criminal charges agreeing to pay $42 Million in fines and restitution. In the end, Bear Stearns refused to accept or deny guilt in the settlements; nevertheless the scandal tainted its record and adversely affected the image of the company.

In the early 2000’s, Bear Stearns maintained its emphasis on clearing operations, mainly the housing market, by increasing its focus on packaging and selling mortgages. As investor losses mounted in this market in 2006 and 2007, the company increased its exposure, especially the mortgage backed assets that were central to the subprime mortgage crisis.

In March 2008, the Federal Reserve Bank of New York provided an emergency loan to try to avert a sudden collapse of the company. Sadly the company could not be salvaged and was sold to JP Morgan Chase for $10 per share. This price was far below the pre-crisis high of $133.20 per share.

Keller Zabel is offered an obscenely low price for its stock by Bretton James in the 2010 movie, Wall Street – Money Never Sleeps.

LEHMAN BROTHERS

Lehman Brothers was founded in 1850 by Henry Lehman and his brothers, Emanuel and Mayer. The firm prospered for many decades as the U.S. economy grew and prospered. There were several periods that caused great concern for Lehman Brothers, but it managed to survive them all.

In 2003 and 2004, the U.S. housing boom was well under way. Lehman acquired five mortgage lenders, specializing in subprime mortgages.

In February of 2007 Lehman brothers stock reached a record high of $86.18 giving it a market capitalization of close to $60 Billion. By the end of the 1st quarter 2007, the U.S. housing market was starting to falter as defaults on subprime mortgages were rising. In March of that year, after Lehman Brothers had its largest stock price drop in 5 years, though the firm reported record revenues and profits. In a conference call, the CFO said the problems with the housing market would have little impact on the firm.

In August of 2007, with the collapse of two Bear Stearns hedge funds, Lehman’s stock price fell sharply. The company began eliminating jobs and offices as a result. Although the stock rebounded in the last quarter of 2007, Lehman Brothers failed to take the opportunity to trim its massive mortgage portfolio.

On June 9, Lehman Brothers announced a second-quarter loss of $2.8 Billion. It reported that it had raised money from investors, boosted its liquidity pool, decreased gross assets, reduced its exposure to residential and commercial mortgages, and cut down leverage.

Lehman Brothers stock continued a steady price decrease over the following months. Moody’s Investor Service announced an investigation into Lehman’s credit ratings. Last-ditch efforts for a takeover also failed and on September 15, 2008 it filed for bankruptcy.
JON CORZINE

- Jon Stevens Corzine was born on January 1, 1947 in Taylorville Illinois. He graduated from University of Illinois at Urbana-Champaign with Phi Beta Kappa honors. While still in college he enlisted in the United States Marine Corp where he served from 1969 to 1975, attaining the rank of sergeant. After being discharged from the Marine’s, he obtained his Master of Business Administration from University of Chicago Booth School of Business.

- Jon started his career in business in the bond department of Continental Illinois National Bank where he worked days while he attended college at night. He then began working for BancOhio National Bank until 1975 when he moved to New Jersey and began his career with Goldman Sachs.

- He worked many years at Goldman Sachs working his way up to Chairman and CEO of the company. He successfully converted the investment firm from a private partnership to a publicly traded corporation. Corzine was summoned to help the U.S. government develop a rescue package for a hedge fund that threatened to collapse the U.S. financial system. In 1999 when Corzine decided to help with the bailout, another major player in the firm, seized control of Goldman Sachs and forced him out.

- After being forced from Goldman Sachs, Corzine was elected to the Senate in the November 2000 election and was sworn into the Senate in January 2001. Corzine served as the 54th Governor of New Jersey from 2006 to 2010.

- In March of 2010, Corzine was appointed Chairman and CEO of MF Global. After stock prices declined two-thirds and its credit rating was reduced, Corzine resigned his position as CEO on November 4, 2011. Shortly after his resignation, he was subpoenaed to appear before a House committee to answer questions regarding missing money from MF Global client accounts. Jon was sued under U.S. racketeering law by commodity customers alleging he and other executives “unlawfully” took money from their accounts and failed to segregate their money as the law requires. The investigation is still underway.

MF GLOBAL

- MF Global was a major global financial derivatives broker. MF Global was the brokerage segment of Man Group until 2007, when the business decided to split the investment and brokerage businesses so they could each focus on their own markets.

- MF Global provided exchange-traded derivatives, such as futures and options as well as over-the-counter products such as contracts for difference, foreign exchange and spread betting. It was also a primary dealer in United States Treasury securities.

- On October 30, 2011, the brokerage firm first reported a “material shortfall” of hundreds of millions of dollars in segregated customer funds. On October 31, 2011, MF Global admitted to the transfer of $700 Million from customer accounts to the broker-dealer and a loan of $175 Million in customer funds to MF Global’s UK subsidiary to cover or mask liquidity shortfalls at the company. Customer accounts were frozen while the parent company, MF Global Inc., filed the eighth-largest U.S. bankruptcy.
**QUESTIONS OF DISCUSSION**

- Is there any validity to Gordon Gekko’s quote “greed is good”? How is “greed” demonstrated by both Gekko and Bud Fox? What motivates Fox to make the choice to go against Gekko and tape their final conversation?

- Bud Fox begins as an ambitious young trader who wants to “make something of himself” so his father will be proud of him, what are the dilemmas faced by Fox when his professional interests are pitted against his family interests? What is the impact on Fox as Gekko coaches him on becoming a “success”? Should Fox break the law for the greater good and to undo the damage that Gekko has caused? According to psychologist Lawrence Kohlberg, at what stage of moral development is Fox at when he makes the decision to manipulate stock values of Bluestar Airlines?

- Winnie agrees to marry Jake. Shortly after, Jake attends a lecture by her estranged father Gordon Gekko. Gekko refuses to talk to Jake, until he comes forward with the fact that he will be marrying his daughter. Is it ethical that Jake used his status as Gekko’s soon to be son-in-law, to gain access to Gekko?

- Bretton James started rumors about Keller Zabel so that it would fail. When Jake finds out that it was Bretton that started the rumors so that his company could profit from its demise, Jake vows revenge. By starting his own false rumors about Bretton’s company, Jake ends up costing the company $120 million. I am sure we can agree that what Jake did is no worse than what Bretton did, but is it right that we condone his actions? Would you agree that Jake’s actions were just as unethical as Bretton’s?

- The US went through a financial crisis in the 80’s, only to become more stringent on the accountant profession. Again in the 2000’s, we have seen severe financial strain in the United States Economy. After looking back at all that has happened, do you think things will ever really change in business? Can you say that you believe that more regulation will help? Greed has remained a part of human nature over the years, do you think that this will ever change.
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• Gordon Gekko proudly states that "greed is good." According to Gekko, the greed of the American capitalist system drives innovation and creates wealth. However, Bud Fox learns that being greedy can involve doing bad things. He learns that to be driven by greed requires one to do things that are not good. Greed drives him to lie, cheat, and hurt those who are closest to him. In the end he must decide whether the good that comes from his greed outweighs the bad that it causes.

• Bud Fox's father has worked his whole life as a mechanic for Bluestar and now heads the mechanics union, when faced with the knowledge that Gekko plans to strip the company’s assets, sell it off and leave many, including his father, out of a job Fox must make the decision whether to do what’s best for his career or best for his own father. Bud Fox begins as a law-abiding trader; however, Gekko coaches him to become a manipulative trader who is willing to bend and break the law in order to profit. Once Fox decides to keep Bluestar out of Gekko’s hands, he is faced with an ethical dilemma on how to accomplish his task. Fox decides to break the law by manipulating stock values. In the end he pays for his decision as shown in the closing of the film with his arrest on insider trading and securities fraud charges. According to Kohlberg’s model, Fox would be reasoning from Level 2 or the “conventional” level, specifically stage 3 “fairness to others”. At this stage Fox is motivated to do what is perceived is in the best interest of Bluestar employees.

• What Jake did is not illegal, but could be seen as unethical. On a very small scale, he did nothing but use his status to obtain the attention of a person whom he admired and wanted advice from. Let’s look at the larger picture. Would it be right for the Vice President of a major corporation to use his status to obtain a meeting with someone of importance? What if he was using that status to obtain a meeting with a person to gain insider information, or to force someone’s hand? Unethical behavior has to start somewhere. Business scandals usually start small as just a minor fix to a minimal dollar amount that must be enlarged each period to keep up.

• As we are watching “Wall Street-Money Never Sleeps” we cannot help but feel the same sorrow as Jake. Human nature tells us that we should agree with what Jake does, but we would be wrong. When you look at the facts of what Bretton did and what Jake did, we find that they did exactly the same thing. Each man started false rumors about the other. The main difference between the two is that Jake did not gain anything from his rumors, where Bretton gained profusely. There is even a point in the movie when Jake is talking to Gekko, and Gekko tells him that what he did was illegal. Jake’s reply to this statement is, “it’s kind of hard to prove that.”

• We have gone through the facts of several business scandals that have occurred over the last 40 years. The trend that we see is that criminals tend to commit a crime, the government passes a law to prevent further crimes, the criminal finds a way around that law, and the cycle starts all over again. Greed will always be a part of human nature, and that will never change. Man will always strive to have the most and best. Man will also do anything to get it.
OPTIMIZING TEACHING AND LEARNING THROUGH THE APPROPRIATE USE OF LEARNING MANAGEMENT SYSTEMS

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ABSTRACT

The aim of this systematic research project was to determine the utility of various learning management system tools and correlate them with known factors of student success. Three distinct principles were assimilated to derive a framework for using web-based modes to improve student success. This framework was then supported via evidence found in the literature and practical experience. The three principles, or statements, were: 1) “Five factors are found to play a significant role in student achievement: high expectations, demonstrated concern, structure, information, and collaboration.” 2) “It is widely agreed that student engagement and active learning play a major role in student success.” 3) “Learning management systems are known to be good administrative tools and information repositories, but the question is whether they actually improve student learning.” Specific tools, such as forums, quizzing, and simulations were correlated with various predictors of student success. The framework was applied and demonstrated effective for improving student success.
DEVELOPING AN ONLINE OR HYBRID COURSE USING MOODLE

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Online and hybrid courses are becoming a standard component of most academic programs. Learning Management Systems (LMS) such as Blackboard and Moodle are typically employed to house the content of those courses and provide order to those courses. In this workshop, each participant was provided with an empty Moodle course that s/he designed and developed during the workshop. The general process for developing a course was as follows: 1) determine the need for a course, 2) determine the cultural and academic makeup of the intended students, 3) define the course objectives, 4) design activities appropriate to both the objectives and the student composition that will engage the students and enable attainment of the course objectives, 5) build the course, 6) verify the structure, content, and flow of the course. During the workshop the facilitator walked participants through these steps as they built their own course.

The facilitator guided participants in various development activities such as setting up the gradebook, developing quizzes, designing discussion forum assignments, setting up course wikis, blogs, portfolios and other activities available via Moodle. Participants were then taught how to save a backup copy of their course for uploading to another Moodle installation. Emphasis was placed on what learning activities would be appropriate for different results. For example, while online quizzes are not effective for assessing student knowledge, it has been found to be appropriate for engaging students during reading assignments. Effective use of discussion forums was also discussed, along with gradebook strategies and Moodle administrative topics.

A significant discussion was that of the administrative role: what options are configurable, how themes can improve accessibility and a sense of personal freedom, designing custom roles for teaching assistants, and how to adopt Moodle for one's own courses or the courses of a department regardless of whether Moodle is the campus-wide LMS.

The facilitator's knowledge and expertise were gained from being a Moodle researcher, developer, administrator, consultant, and instructor. He has been working with the LMS since 2004, and has developed online courses for graduate and undergraduate programs. Visit http://moodle.org for further assistance on downloading and installing the free application, tutorials, usage and troubleshooting forums, effective pedagogies, and scores of additional add-on modules and plug-ins.
BRINGING THE COURTROOM INTO THE CLASSROOM

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ABSTRACT

Baier (2009) and others have advanced the pedagogical usefulness of audio recordings of oral arguments before the United States Supreme Court in the context of legal education. This presentation updates and expands upon this and similar work by outlining the results of a real-time survey of web-based audio and audio-visual resources from additional federal and state appellate courts. In addition, it points toward using excerpts of such recordings as in-class teaching tools or assigned listening across a very broad range of traditional academic disciplines. Experiential recommendations are included for effective and efficient selection and presentation techniques, including identifying web-based listings of “leading” Supreme Court cases by subject matter and the two principal websites that currently allow downloading of podcasts or on-line playback of oral arguments dating from as early as the 1960s.
Using Digital Media to Enhance Contextual Understanding of Vocabulary: A Follow-Up Study

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Abstract

The authors conducted a follow-up research project in which pre-service teachers used a video recorder to digitally define a content area vocabulary word in multiple contexts. Specifically, the authors attempted to answer the following questions:

1. How will creating a video for instruction affect pre-service teachers’ attitudes about using technology for instructional purposes, if at all?
2. How will creating a video for instruction affect pre-service teachers’ self-efficacy pertaining to the assignment, if at all?
3. What themes will emerge when defining one term in multiple contexts and with multiple perspectives?

The data derived from this study involved pre-service teachers’ use of digital video recorders, which were purchased through two separate grants funded by the Southwest Teaching and Learning Conference.
Using Digital Media

Introduction

The use of videos for instructional purposes is increasing (Trotter, 2007). This is due to many reasons including the increased efficacy of pre-service teachers who plan to incorporate technology in their future classrooms (Webb & Kapavik, in press). In addition, costs associated with video equipment continue to lower each year enabling the purchasing of different instructional tools, including digital video cameras.

Digital media is an area students are interested in and can provide "scaffolds and contexts in which to learn with, and about, words more profitably" (Dalton & Grisham, 2011, 306). Creating videos to learn vocabulary words "builds on individual interests as well as curriculum needs, and emphasizes self-efficacy in word learning" (Dalton & Grisham, 2011). According to Shephard (2003), the use of videos in education supports visualization strategies, content recognition, and greater understanding of material by providing illustrations connected to students’ real world.

Research clearly supports the creation and use of videos to enhance student learning. For example, Sherin and Van Es (2005) described three stages observers went through during learning from videos: identifying surface level observations, connecting to broader perspectives, and then applying to new situations. In another study, “video was the catalyst that moved student experiences during literature discussions from merely talking about books at a surface level to greater self-awareness and identity transformation” (Silvers, 2008, 8). Hakkarainen (2009) found that digital video creation assisted in learning about the content of the video, as well as the technical skills used in producing them.

Because current research espouses the benefits of student use of digital media, more research is needed in the area of how those notions may be supported in pre-service teacher education courses. And, the most appropriate setting for this type of research is in pre-service teacher methodology coursework where future teachers learn and practice research-based strategies to enhance student learning.

Research Study

This research project was a continuation of a project funded by different grant opportunities from the Southwest Teaching and Learning Conference. The first project was such a success that additional resources were needed to continue the project on a wider scale. This project studied the use of videos to teach vocabulary across disciplines and in multiple contexts. And, with funding, the researchers were able to purchase a total of thirteen digital video cameras for use in mathematics and social studies methods coursework.

The second study attempted to discern attitudes of using technology in classroom instruction by pre-service teachers. An additional objective was to measure self-efficacy of the pre-service teachers’ own synthesis of content-specific vocabulary and the teaching of that vocabulary. While the first study involved the digital defining of multiple content area vocabulary terms, the second study involved the digital defining of one term by all students in a math methods course and one term by all students in a social studies methods course. That way, the researchers were able to discern how the pre-service teachers digitally defined a term in multiple contexts and with multiple perspectives. The term assigned to the pre-service teachers in the math methods course was “angle” and the term assigned to the pre-service teachers in the social studies methods course was “citizenship.”
Specifically, the authors attempted to answer the following research questions:

1. How will creating a video for instruction affect pre-service teachers’ attitudes about using technology for instructional purposes, if at all?
2. How will creating a video for instruction affect pre-service teachers’ self-efficacy pertaining to the assignment, if at all?
3. What themes will emerge when defining one term in multiple contexts and with multiple perspectives?

Methodology

Both quantitative and qualitative data were collected. An electronic survey was distributed to pre-service teachers in methodology, field-based courses. The survey questions addressed attitudes of using technology for instructional purposes in a Likert-scale format, as well as attitudes of self-efficacy. Qualitative data were collected from the videos created by the pre-service teachers. Demographic information was also collected; however, submissions of all quantitative and demographic data remained anonymous.

Descriptive analysis was conducted on demographics. Quantitative data was also analyzed using a multivariate analysis of covariance. The qualitative data were coded for keywords and themes, as well as used for anecdotal records.

Findings

The online survey included questions such as,
1. Technology can be used effectively for instructional purposes.
2. Videos can be used effectively for instructional purposes.
3. It is easy to implement technology in the classroom for instructional purposes.
4. Videos will increase your students’ understanding of content area vocabulary.
5. Elementary students can easily implement technology in classrooms.
6. I am excited about creating the video.
7. I believe I will be successful with this activity.

Correlations were run including data regarding attitudes, self-efficacy, prior video use for instruction, and the desire to create more videos for instruction. Positive correlations between prior video use and post- self-efficacy means were statistically significant at the p<.05 level. In addition, positive correlations existed between pre-survey questions pertaining to attitudes and questions pertaining to self-efficacy at the p<.01 level, as well as between post-survey questions pertaining to attitudes and self-efficacy, which tends to be expected in such cases.

In a qualitative analysis of the vocabulary videos created by pre-service teachers in a math methods course and a social studies methods course, it became apparent that two themes emerged: multiple generations and school-everyday life connections.

Of the forty-six vocabulary videos submitted, over half involved multiple generations in the making of the video. These pre-service teachers utilized their personal children’s assistance in completing the university assignment. “I thought it was fun and so did my children. They want to do more…as do I. It really made the definitions come to life to my little ones and was hilarious at times while we were filming” (Open-Ended Survey Question Response).

The other theme, school-everyday life connections, became apparent through the use of familiar places and the use of ordinary objects to support the vocabulary term. For example, pre-
service teachers utilized their children, homes, schools, grocery stores, among many other familiar places in their everyday lives. By using these common places within the videos, the pre-service teachers created digital definitions of the vocabulary terms that “come to life” rather than remain black and white text on a textbook page.

In addition, the pre-service teachers were able to experience the incorporation of technology in a classroom environment to create a video in the completion of an assignment. “Thank you for the opportunity of using video in a classroom environment. It opened my eyes to more uses of technology that can, and will be implemented in my future classroom” (Open-Ended Survey Question Response).

Conclusions

Quantitative data collected in this follow-up study did not produce statistically significant results in answer to the research questions. Participants’ prior use of video for instruction correlated to their self-efficacy in the post-survey, which is somewhat predictable. In addition, participants’ attitudes and self-efficacy scores were positively correlated, which is also found in the literature, but does not answer the specific research questions asked by the authors.

Qualitative data reinforced themes discerned in previous studies and included the use of multiple generations and school-everyday life connections. These themes are more than likely unique to the pre-service teachers at this particular university research site. However, the themes definitely fit the population demographics as the mission of the university is to serve the educational needs of non-traditional students who have historically been excluded from a university education.

References


About the Authors
Dr. Webb is currently an Assistant Professor at Texas A&M University-San Antonio in the School of Education & Kinesiology. She has been an educator for over twenty years and her research interests include teacher preparation, technology integration, and literacy.

A former classroom teacher, Dr. Kapavik is currently an Assistant Professor at Texas A&M University-San Antonio in the School of Education & Kinesiology. Her research includes projects based upon pre-service teacher education.
DEMONSTRATING SYNTHESIS VIA COLLABORATIVE TECHNOLOGICAL TOOLS

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ABSTRACT

In upper-level undergraduate courses, we seek evidence of student synthesis. We also recognize that demonstrating synthesis is not intuitive; students need practice integrating their learning and articulating that integration, especially first-generation students. Informed by Vygotsky’s theory of the role social interaction plays in learning and adult learning principles, the instructor looked to collaborative technological tools to help students become familiar with synthesis—its scope and methods. In addition to adding collaborative technology to a popular senior-level course, the instructor revised the traditional face-to-face course to a blended format. Planning involved extensive ‘faculty development’ from mid-November through Christmas holidays to the beginning of the spring semester; but, the effort was well worth it.

Working closely with the Instructional Technology staff, the instructor scheduled classroom instruction in the use of basic tech tools the first week of the course to ensure that all students began on a level-playing field. It was obvious during these two sessions that “digital natives” are not necessarily “digitally adept.” Short, no-risk tasks were assigned in these sessions to provide practice while “experts” were present to assist as needed. This decision proved to be invaluable as the semester progressed. Students were more willing to share their difficulty with the tools and a spirit of community emerged rather quickly—an essential aspect of education linked to academic retention AND success, especially for first-generation students. Once students evidenced comfort with synchronous discussion, the instructor moved students from reliance on anecdotal material to more reflective content. The primary goal was to have students demonstrate awareness of their thoughts as well as the thoughts of their colleagues. The Blackboard Collaborate synchronous discussion tool facilitated this goal with admirable effectiveness. Not only did students develop more confidence in their course discussion, but they also became more conscious of the implications of their
claims and those of their peers and began to initiate the request for clarity and validation themselves, rather than rely on the instructor to step in with the “why” questions. Because technological collaborative tools maintain thorough digital records of synchronous discussion, both students and professor had concrete evidence of learning. This fact enabled the professor to compose individual finals and deliver them through the timed option in Blackboard and respond to student question or issue in real-time as students composed their final answers. Agility and creativity, combined with theory and technology, resulted in engaged learning.
Participants will handle specimens of the corn earworm (Helicoverpa zea) in all its life stages and learn how to conduct research. They will watch short video clips of scientists engaged in research linking corn, bats and moths. The latter cost farmers $1 billion annually. They can order class sets of worms (FREE) for study and research at: http://www.hsi.usda.gov/CornEarWorm

They will handle various types of corn (Zea mays) and see how to grow it in the classroom and how it is linked to ethanol production. They will handle grass flowers to compare them with corn tassels and silks, learning how corn has evolved from Indian Corn (Zea mays indurata) to Bt Corn. An inexpensive digital microscope, linked to the
LCD, will be used during the workshop to show participants how technology can intrigue and enthuse students about science.

The goal of the workshop is to share the fun and excitement of research and the audience will be asked to contribute research ideas and possible research techniques and research questions. Previous examples of student research projects on the corn earworm created as power points and tri-fold posters will be shared. Students will be inspired to continue their studies in science. Teachers will have access to a hands-on, inquiry-based program that will make them more effective in the classroom both increasing student test scores and interest in science: USDA/HSINP Future Scientists Program. There is a pre and post-test available to grades 5-12 and the program is aligned with both National and Texas State Standards. Both students and teachers will feel comfortable handling and studying a major agricultural pest, gaining insights into one research program of the USDA/Agricultural Research Service (ARS). They will be provided contact information to the 100 USDA/ARS research labs nationwide that are willing to act as an educational resource for teachers and as a source of employment and potential career path for students.

By the end of the workshop, participants will be able to:
1. Know how to conduct research using the corn earworm (Helicoverpa zea)
2. Understand the evolution of corn (Zea mays) from Eastern Gamma Grass (Tripsacum) to Indian Corn and Bt corn
3. Become involved in the national USDA/HSINP Future Scientists Program and have links to USDA/Agricultural Research Scientists (ARS) and the resources of the over 100 USDA/ARS research laboratories nationwide for both education and employment opportunities. There are 6 USDA/ARS labs in Texas.

Publications: