REVAMPING A HIGH SCHOOL ECONOMICS CURRICULUM

A PLAN B PAPER SUBMITTED TO THE
DEPARTMENT OF CURRICULUM STUDIES
COLLEGE OF EDUCATION
UNIVERSITY OF HAWAI`I AT MANOA

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
MASTER OF EDUCATION IN CURRICULUM STUDIES

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December, 2010

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Chapter 1

Introduction

When I first started teaching the subject of Economics in a secondary setting some eighteen years ago, I understood the importance of the subject matter and the relevance the concepts had in students' lives. In developing strategies to teach my students the subject of Economics, I found myself struggling to decide which methods to use to impart my economics knowledge to my students. Most of my training in the College of Education guided me to the traditional didactic model of teaching instruction. This meant that the class instruction would be teacher centered and would involve me lecturing the information to my students. As I began my teaching career, I instinctively realized that teaching such abstract economic concepts to secondary students would be very difficult if I stuck to traditional methods. It was at this time that I stumbled upon a different method of teaching economics. The idea of student centered learning was not new to me, but the practice of using it in the classroom was. However, the teacher that preceded me gave me some resources that used simulations and games to teach economic concepts. The light bulb went on instantly and I was motivated to try these new techniques. What I realized as I began to use these simulations and games to teach economics is that this represented a new and exciting way to teach a difficult subject. Through the years of teaching economics this way, I believe that using simulations and gaming has a direct effect on student learning and engagement in the subject of Economics. In today’s society, simulations and gaming are being used as educational tools in settings other than schools. Business, military, and political settings are the new arenas where simulations and gaming are being used.
When I arrived at my current school nearly ten years ago, the economics course that I was assigned to teach was a one semester introductory microeconomics course. This course was a history elective for seniors. Having taught economics at my previous school, I had experience teaching economics to high school students. After teaching this course for five years, I reflected on the curriculum of this course and the lessons used to teach this course. Even though I felt that I was successful in teaching the microeconomics course for the first five years, I felt I could do better. Something was missing in the one semester microeconomics course I was currently teaching. I felt that my students were not getting the complete background in economics to prepare them for their future. What were missing in the high school course that I taught were the macroeconomic concepts that I felt were important for my students to learn. These macro concepts would provide my students with the tools to understand current macroeconomic events. I decided that I wanted to make some changes. I wanted to create an economics course that was more challenging, relevant, and engaging for my students. I felt I needed to do this because I could see that there were still some students that struggled to understand the economic concepts and struggled to stay engaged in class. The purpose of this project is to examine the changes made to a high school economics class curriculum. This Curriculum Studies Plan B Masters project is my personal description of the process that I experienced in changing the curriculum and structure in my high school economics class. This project examines my reasoning behind the structural changes in the design of the course, as well as my implementation of simulations and games to the curriculum of this course. I also provide insights into what I learned in this process and how I think I can evaluate the effectiveness of this new course structure.
Chapter 2
Literature Review

*Curriculum Structure*

The curriculum changes that I implemented in 2005 to revamp my economics curriculum came about after much thought. I was interested in providing a formal economics course that was more comprehensive than the one I was currently teaching. Walstad and Soper (1982, p. 52) state that, “A formal economics course, for example, has powerful effects on both student achievement and attitudes towards the discipline.” My main goal in this process was to offer a more thorough one-semester course in economics that would engage and challenge my students in the realm of economics. The idea for changing my curriculum came about from some of the preliminary research that I had previously done in regards to high school economics curriculums. The first document I looked at was the “Voluntary National Content Standards in Economics,” see Appendix A, (“Voluntary National Content Standards in Economics,” 2010). This document contained the twenty economic standards that a literate economics student graduating from high school should be able to know and do. Standards 1-8 and 16 represented the fundamental economic concepts taught at the beginning of an introductory course. Standards 9, 10, and 14 represented those concepts geared specifically for a micro economics course. Standards 11, 12, 13, 15, 17, 18, 19, and 20 represented principles covered specifically in a macroeconomics course. The current one semester course that I taught at the time was a micro economics course.
I wanted my students to receive a more comprehensive coverage of the economics standards. This meant that I had to find a way to incorporate the standards that were not being covered with my current class.

I used data that I had been collecting through my first five years teaching the course. The data that I had been collecting were the results from the Test of Economic Literacy (TEL). I would give this forty question test as a pretest to gauge the economic literacy of my students at the beginning of each semester. I would then give this test to my students at the end of the semester to see if they improved in their economic literacy after going through my class. This TEL was designed according Walstad and Soper (1988, pp.24-36) in the following way, “Approximately 26 to 30 percent of the questions are in the fundamental, microeconomic, and macroeconomic areas. About 15 to 17 percent of the questions are in the international area. Questions are well distributed across cognitive levels: knowledge (17 percent), comprehension (28-30 percent), application (22 percent), analysis (22-24 percent), and evaluation (9 percent). Each form is at a high school reading level and can be completed in a standard forty- to fifty-minute class period. Given the extensive test-development work, a strong case can be made that the revised TEL is a valid measure for assessing senior high school student understanding of basic economic concepts.” The results from implementing the TEL to my students were that the students improved in the fundamental concepts and micro area, but lagged in their understanding in the macro area. This was an important finding for me because I felt that understanding macro principles were important for students to understand the global economy. Many of the current event economic news revolved around the understanding of macro concepts. As Walstad and Soper (1988, pp.24-36) say, “Macroeconomics may dominate current events, but students do not have sufficient economic understanding to analyze those issues.”
The last issue that came about in deciding to change my curriculum was in preparing my students to be able to continue their pursuit of economics education. I wanted to provide a strong foundation for the student to continue their study in economics either at the Advanced Placement or college level. Having a background in the fundamental concepts, micro concepts and macro concepts would provide enough breadth and depth for the students to continue their study. This idea for high school students to have both micro and macro along with fundamental concepts was also found by Lopus (1997, pp.143-153), “I found that students whose high school classes covered macro or micro entered college principles of economics classes with more knowledge of these subjects than those with no high school economics background. These positive differences did not hold for students who took high school economics without a macro or micro curricular emphasis, suggesting that when high schools purported to teach macro and micro, their efforts were successful.”

_Simulations and Student Engagement_

In this project, I am specifically concerned with economic simulations/games and their relationship to student engagement. Engagement is defined in Newmann (1992, p. 12) as “the student’s psychological investment in an effort directed toward learning, understanding, or mastering the knowledge skills, or crafts that academic work is intended to promote” (Cited in National Research Council Institute of Medicine, 2004). Crookall, Oxford, and Sanders (1987) defined simulations as a representation of some real-world system that can also take on some aspects of reality for participants or users. (as cited in Garris, Ahlers, &Driskell, 2002, p. 443). Ruomaki (1995, p. 13) defined games as, “when one or more players compete or cooperate for
payoffs according to a set of rules.” Ruomaki (1995, p.13) states that “a game means a setting in which participants makes choices, implements those choices and receive consequences of those choices in an effort to achieve given objectives.” Garris et al., (2002) looked at the key features of a simulation being they contain rules and strategies that allow for flexible and variable simulation activity to evolve; and the cost of error for participants is low, protecting them from the more severe consequences of mistakes. Crookall et al., (1987) noted that the difference with games was that although a game has similar rules and strategies, it was not intended to represent a real world system.

Simulations and games first appeared on the educational landscape in the early 1960’s and have become an increasingly popular way of teaching concepts and applications in the classroom according to Ruben (1999). The questions that came to mind when thinking about using economic games and simulations in the classroom were related to the connection between Economic simulations/games and student engagement. Do simulations and games have significant impacts on student engagement, or is it the retention of the learned principles that simulations and gaming truly affects? What are the characteristics of simulations and games that lead to an improvement in student engagement in the classroom?

Early studies by Lev Vygotsky provide a basic framework for the study of this type of phenomena. In Vygotsky’s “Theory of Cognitive Development”, he talks about a Zone of Proximal Development. Vygotsky defines this as “the distance between actual development level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers” Hamilton & Ghatala (1994, pp.265-277). Vygotsky argued that the effective learning occurred in advance of development. As Vygotsky put it, “It awakens and arouses to life those
functions which are in the stage of maturing, which lie in the zone of proximal development” (as cited in Hamilton and Ghatala, 1994, p. 265). Do simulations/games trigger a reaction in Vygotsky’s zone of proximal development when students are interacting with each other in problem solving ways? From a scientific perspective, Smokler (2009) discusses the relationship between learning and brain development. The mammalian brain which contains the limbic system, allows us to feel emotion and create and retain memories. The thalamus located near the brain center, monitors all incoming sensory information and decides which stimuli need immediate attention. The hippocampus determines which information to transfer from short term to long term memory. Also, the amygdala regulates emotion and attaches memories to these emotions. Smokler (2009) looked at being able to get past the brain’s filters and convincing the brain to create processing time and space and to reinforce these pathways through practice and reflection. By attacking the emotion sensors in the brain, Smokler advises that, “it is crucial that teachers realize that there is an indisputable link between emotion and memory” (Smokler, 2009, p. 10).

The traditional teaching and learning paradigm was thought to be information transfer from a knowledgeable educator to student using traditional methods which included books, articles and lectures. This type of curriculum ideology known as Scholar Academic, views teaching as a “function of their discipline responsible for initiating novices into the discipline by transmitting that which is known to those who do not know it” (Schiro, 2008, p. 184). Ruben (1999) looked at seven reasons why this traditional paradigm needed to be revised. “First, the traditional Paradigm implied that teaching and learning were inseparably linked. Second, the ultimate test of the knowledge and skill acquisition is usually not in knowing but in the ability to use knowledge appropriately. Third, the traditional school-based teaching and learning paradigm
tended to emphasize the transmission of knowledge from an acknowledged expert to individuals in isolation. Fourth, learning what someone intends is not the only, nor necessarily even the most desirable outcome in the teaching-learning environment. Fifth, through the structure of classes, the physical layout of classrooms, and traditional approaches to testing, the traditional model conveys a number of meta-messages about knowledge creation, acquisition and use. Sixth, the classic knowledge-transfer model of education had little capacity to accommodate issues of emotion and the theoretical and practical linkages between the cognitive, affective, and behavioral domains. Seventh, traditional teaching-and-learning environments were often too predictable, static, and unchallenging” (pp. 499-500).

With a foundation in the writings of Socrates and Aristotle, simulations and games came to the forefront in education as educators rushed to embrace this experienced based learning in the 1970’s and 1980’s. According to Rueben (1999, p. 501) “Experience-based, or experiential, instructional methods had the potential to address many of the limitations of the traditional paradigm. They accommodated more complex and diverse approaches to learning processes and outcomes; allowed for interactivity; promoted collaboration and peer learning; allowed for addressing cognitive as well as affective learning issues; and, perhaps most important, fostered active learning.” This type of curriculum ideology is known as Learner Centered. In this type of curriculum, “learners must personally experience reality in order to grow, learn, and construct meaning.” In this type of curriculum, the school accomplishes this by putting the students in an environment where they can be active learners. “It does this by furnishing them (students) with a multitude of activities involving physical materials and social encounters.” (Shiro, 2008, p. 95)

More recently, studies have been done to try to measure the effectiveness of games and simulations on learning and retention. Learning data collected from twenty one simulation-based
training games through fact and principle type knowledge testing, revealed that three reported results that favored the effectiveness of simulations over conventional teaching. Fifteen of the studies showed no significant differences Piefry (1977). Eleven studies were conducted that tested the retention of learning. Eight of these studies indicated that retention was superior for simulation-based training and three reported no significant differences. The other phenomenon that needs to be addressed is the motivational interest that simulations and games seem to be connected to. Studies of motivation have looked at both intrinsic and extrinsic types of motivation. Garris, Ahlers, and Driskill (2002) note that “although most simulations/games are done to enhance intrinsic motivation, extrinsic motivation is also important. The goal is to develop learners who are self-directed and intrinsically motivated, both because both the activity is interesting in itself and because achieving the outcome is important” (p. 445). Central to the focus of this project are the following questions: Does the use of games and simulations to teach abstract concepts in Economics enhance the intrinsic and/or extrinsic motivation of my students? Does the use of simulations motivate my students because it makes the subject matter more interesting or are they more motivated because of the expected outcome from participating?

Smokler (2009) believes that teachers should design instruction that supports how the brain learns. He believes the four most important factors should be, “gaining and retaining attention, engaging positive emotion, providing complex learning experiences, and fostering reflection and metacognition” (p. 14). In gaining and retaining student’s attention, Feinstein (2004) found that “the adolescent brain is wired to seek novelty and ignore familiar stimuli” (as cited in Smokler, 2009, p. 15). Smokler (2009) advocates that “creating an experience that captures the student’s attention in a way that makes learning more likely” (p. 16).
Emotion also plays a role in engaging students in the curriculum. Enjoyable experiences invoke positive emotions that enhance the way students remember experiences. Smokler (2009) also believes that “by creating experiences in the classroom, teachers can provide emotional stimulation, optimizing the formation of memories” (p. 17). In looking at providing complex learning experiences, Smokler (2009) looks at activating the multiple intelligences that fully engage the student. Allowing the students the opportunity to have these complex learning experiences along with allowing the students to interact with their peers provides the optimal learning experience. “When students actively process together, they discuss, consider, and grapple and sometimes, they rethink their original ideas and positions, all activities that help strengthen learning” (Smokler, 2009, p. 19). The National Research Council Institute of Medicine (2004) supports the argument of educational conditions being necessary for intellectual engagement. They believe that three sets of psychological variables are needed for intellectual engagement. They are “beliefs about competence and control, values and goals, and a sense of social connectedness” (NRCIM, 2004, p. 34).

Beliefs about competence and control revolve around the ability of the student to feel they can succeed in doing the work. Economic simulations and games help the students to understand difficult concepts and therefore give them the confidence that they can master the material. The NRCIM (2004) believed that the reasons for students to be engaged varied from being more intrinsic to being more extrinsic. Simulations and games help with both types of motivation. Intrinsically, by participating and doing well in the simulation or game, the student will gain a stronger understanding of the content. Extrinsically, by succeeding in the simulation, the student will be rewarded to some degree. Either way it is the motivated learner that all
teachers seek. Garris et al., (2002) described motivated learners as enthusiastic, focused, and engaged. They are interested in and enjoy what they are doing, they try hard, and they persist over time.

The argument can be made that simulations and games also help students with social connectedness. Interacting with peers allows the student to feel part of the class and or group. Also, by playing different roles in the simulations and games, the student begins to feel part of the community as a whole. In competitive group games, students feel a sense of togetherness and belonging by participating on a team. This setting promotes stronger interpersonal relationships between students. “Many correlational studies have shown that students who report caring and supportive interpersonal relationships in school have more positive academic attitudes and values and are more satisfied with school” (as cited in NRCIM, 2004, p. 42).

The NRCIM (2004) looked at the characteristics necessary for student engagement. The first was an emphasis on higher order thinking. Research has shown NRCIM (2004), that “students become cognitively engaged when they are asked to wrestle with new concepts, when they are pushed to understand – for example, by being required to explain their reasoning, defend their conclusions, or explore alternative solutions” (p. 49). Secondly, when students are actively participating in their learning, they are more likely to be engaged. When students are participating in role playing simulations or are part of competing games, their engagement is greater than when they are listening passively to lectures. Third, simulations and games offer the students a different variety of learning experiences. These experiences change the pacing of the class; it also makes the class more interesting for the student. The fourth characteristic in the NCRIM study looks at collaboration. “Students’ engagement in the learning process can be enhanced by allowing them to work in pairs or small groups on activities that require sharing and
meaningful interactions” (p. 51). An economic simulation usually requires students to work in pairs or groups and also asks them to interact with other students in meaningful ways.

So what can we conclude from the historical and current findings related to class simulations and student engagement? From a scientific perspective we can see that Vygotsky and Smokler both observe a connection between brain development and the simulation that comes from participating in simulations and games. Also, there are motivational factors at work. Simulations and games provide both intrinsic and extrinsic motivation. Socially, simulations and games provide a platform in which students are able to intelligently interact with their peers in meaningful ways.

Chapter 3

Project Methodology

Curriculum Structure

During the 2004-2005 school year, I started to plan the curriculum changes that I would be making with my economics course. Before presenting my idea of these changes to my department, I needed to examine the current curriculum that I was teaching in terms of concepts, lessons, and time frame. My current course was designed as a one semester introductory microeconomics course open to seniors for one half elective credit. This course had been designed this way since I first arrived at my school five years earlier. The curriculum for this course was designed to be a typical high school microeconomics course. This meant that the fundamental economics concepts would be taught during the first part of the course and the specific micro concepts would be taught in the second half of the course. The fundamental economic concepts included basic economic concepts taught in any introductory course and were
found in most high school economics courses. These concepts included scarcity, opportunity cost, trade, supply and demand, and government intervention.

The microeconomic concepts included the theory of the firm, which contained the study of costs, perfect competition, monopoly, oligopoly, and monopolistic competition. This entire curriculum was fit into a time frame of twenty weeks (One-Semester- See Appendix A). Within these twenty weeks, I was able to provide a curriculum that gave my students a strong background on the basic economic concepts and the specific micro concepts that included the theory of the firm and specific markets. However, I wanted to be able to offer the students a curriculum that provided a strong coverage of the basic economic concepts and provide coverage of both micro concepts and macro concepts. By providing a strong background in the basic concepts, I would be building a strong foundation to cover both micro and macro concepts since one semester high school economics courses typically covered the basic economic concepts in the first half of their courses.

Before making the change to offer a course that covered the basic concepts, micro, and macro; I needed to examine what was being required nationally in terms of standards. This led me to look at the Voluntary National Content Standards in Economics. (See Appendix B) When reviewing these standards, I noticed that these standards included the three areas that I wanted to offer in my class. These included the basic economic concepts, microeconomic concepts, and macroeconomic concepts. These standards provided me with the basis of what concepts I would incorporate into my new curriculum. My goal was to include as many of these National Standards that I could, given my one- semester time frame. I decided to include standards 1, 2,
3, 4, 5, 6, 7, 8, 9, 11, 12, 14, 15, 16, 17, 18, 19, and 20. My previous microeconomics course included only standards 1, 2, 3, 4, 5, 6, 7, 8, 9, 14, and 16.

The next step was to find a textbook to go along with my course that included coverage of the standards that I had chosen. The textbook I had originally used was titled, *Economics today (the micro view)* by Roger Leroy Miller. The new text that I found that included the basic concepts, micro concepts, and macro concepts was titled, *Essentials of economics* by Gregory Mankiw. This text provided a thorough coverage of the economic concepts that I wanted to cover. Although this text was designed as an introductory college text, it was written in very simple terms. It was also designed for a one semester class to cover micro concepts and macro concepts.

The challenge in designing this curriculum was to be able to fit all three areas, basic concepts, micro concepts, and macro concepts into a one-semester class. This proved to be the most difficult step in the revamping of this high school economics curriculum. I had to decide what to keep from the original curriculum, what new concepts to add in, and what concepts to throw out. I decided to divide the new curriculum into three sections. The first section would include the basic fundamental economic concepts. The second section would cover the microeconomic concepts and the third section would cover the macroeconomic concepts. In designing this new curriculum, it made sense to keep the fundamental economic concepts in place to be covered at the beginning of this course. The reason for this design is that students taking either an introductory micro or macro course need the fundamental concepts as a foundation to continue into the micro or macro area. Both the study of microeconomics and macroeconomics build on and incorporate the fundamental concepts of economics. Another
reason for providing a full coverage of the fundamental economic concepts is that it would provide the students a strong foundation if they decided to further their study in economics.

Following the basic fundamental economic concepts, I decided to include the microeconomic concepts. The reason for covering micro first and then macro is that I wanted the students to look at our economy from a narrow perspective (micro) first, and then be able to broaden their view of the economy as they move into the macro section. This approach made sense to me because from my experiences, I felt that the students were more familiar with the micro concepts because they had more life experiences dealing with micro concepts. For example, students were already experienced as consumers and had experience dealing with producers in different markets. With my original microeconomics course, I covered the entire theory of the firm. This coverage included covering costs and the four market structures (perfect competition, monopoly, oligopoly, and monopolistic competition-See Appendix A). The problem with covering these same concepts in my new curriculum was the time factor. In my old course, I spent seven weeks covering the theory of the firm. I knew that I would not have the same amount of time in my new course. I needed to remove some micro concepts from this section. What concepts would I remove from this section? I decided to keep perfect competition and monopoly market structures and remove oligopoly and monopolistic competition markets. My reasoning for this is that perfect competition and monopoly market are at the opposite end of the market spectrum in terms of characteristics. I felt that with these two markets being the polar opposites of each other, it would provide a great opportunity for my students to examine and compare them to each other. They would be able to look at the competitiveness of each market and understand the reasons firms in each type of market choose to price and produce the way that they do. So I designed the micro section to cover costs of firms first and then to cover perfect
competition, followed by the monopoly market. With the elimination of monopolistic competition and oligopoly markets, I was able to eliminate four weeks of coverage from my original curriculum. I also eliminated the coverage of the labor markets which ended my microeconomic course. I felt that I could afford to remove labor markets from my new curriculum because the concepts covered in this area were similar to that of perfect competition and monopoly. The only difference was that perfect competition and monopoly were product markets and the labor market was a resource market.

In determining the coverage for the macroeconomic portion of the course, I needed to determine how much coverage I needed and what concepts I would cover. In a typical high school macroeconomics course, the general measurements of an economy were covered first. These included Gross Domestic Product, Inflation, and Unemployment. I felt that these concepts should be included in my new course because they provided the foundation for students to understand both fiscal and monetary policy. By understanding these measurements students would be able to understand how economists analyze the progress of an economy. Following the three general measures, I decided to include coverage of investments and money and banking. These two areas would also provide the foundation to further examine fiscal and monetary policy applications. Investments concepts examine national savings and business investment. Understanding these two areas are critical in having a full understanding of fiscal policy. The area of money and banking looks at the banks and the Federal Reserve. Understanding the role of banks in money creation and the Federal Reserve in money supply control helps in analyzing the use of monetary policy to control our economy. In the last two weeks of the new curriculum, I cover the aggregate demand and supply model to help the students to understand the impact of fiscal and monetary policy on our economy. The use of this model incorporates all
the previous macroeconomic concepts covered in the previous five weeks. This area culminates the coverage of the macro part of the course. Table 1 displays the comparison between the two courses. In this comparison you can see the changes that take place between the content of the two courses. Weeks 1-9 are the same for both curriculums. The microeconomics section was shortened to three weeks and six weeks of macroeconomics were added in. Overall, the microeconomics course was changed to a micro/macroeconomics course where the basic fundamental concepts would be covered in the first nine weeks, the micro concepts would be covered in the next three weeks, and the macro concepts would then be covered in the last seven weeks.
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2) Firm vs. market
3) Profit
4) Short run vs. long run

### C. Monopoly  
#### Week 13
1) Characteristics
2) Barriers to entry
3) Profit

### III. Macroeconomic Concepts

#### A. GDP  
#### Week 14
1) Real vs. Nominal
2) Characteristics

#### B. Inflation  
#### Week 15
1) What is the Consumer Price Index?
2) Using CPI to calculate the rate of inflation

#### C. Unemployment  
#### Week 16
1) Calculating unemployment
2) Labor force
3) Types of unemployment

#### D. Savings and Investment  
#### Week 17
1) Market for Loanable Funds
2) Fiscal Policy implications
3) Crowding out effect

#### E. Money and Banking  
#### Week 18
1) What is money? Functions
2) Federal Reserve
3) Monetary Policy
F. Aggregate Demand Aggregate Supply
   1) Business Cycle
   2) Aggregate Demand
   3) Aggregate Supply

G. Policy implications using AD/AS Model
   1) Aggregate Demand changes
   2) Aggregate Supply changes
Simulations and Student Engagement

Along with the curriculum structure changes to my new micro/macro course, I also wanted to make sure I incorporated more simulations and games. I felt these simulations and games would help with student engagement. As stated earlier, these simulations and games give the student a positive emotional attachment to the material being covered. They also provide the students complex learning experiences and allow for reflection. In incorporating simulations and games into my curriculum, I had to determine which simulations and games to infuse, when to do it, and how much to use it. The determining factors were time, difficulty of the concepts being covered, and length of the simulation/game.

In my original microeconomics’ curriculum, I had already started to infuse a few class simulations. In determining which simulations to incorporate into my curriculum, I looked at the difficulty of the concepts being covered, length of the simulation, and the age appropriateness of the simulation. When incorporating the simulations into the new curriculum, I looked for simulations that covered concepts that I thought would be difficult for the students to grasp. These concepts that included the fundamental concepts, micro concepts, and macro concepts were the concepts that were more abstract to the students. My hope was that the simulations would have a strong impact on the student’s understanding of these abstract concepts. The length of the simulation also played a role in determining which simulations I used. Limited by a normal forty five minute daily class and a limited time frame, I chose simulations that I could do in one class period. I also searched for simulations that would be age appropriate for high school students because I felt that if the simulations were too easy or too difficult, the students would not be fully engaged.
The first simulation called “The Magic of the Markets” (Appendix C) is used in the fundamental concept section of the course (The Magic of Markets, 2010). This simulation that is used in week three of my new course is used to help with the student’s understanding of the concept of trade. This simulation allows the students to experience the process of trade. During the simulation, the students are put in the position to make trade decisions. This simulation is aligned with Standard 5 from the Voluntary National Content Standards in Economics (Appendix B). Students are given random items and are allowed to voluntarily trade with other students in class. The pool for the students to trade with is limited at first, and then enlarged with each successive round. Through each round, the students are polled for their level of satisfaction with their item. As the students go through each round, the overall level of satisfaction in each round usually rises. In the debriefing, voluntary trade is discussed along with the gains from trade.

The second simulation that I use is called “Cartels and Competition” (Appendix D) is used during the microeconomic concepts section of the course during week 13(Cartels and Competition, 2010). This simulation divides the class into five to six groups of four students each. The concepts covered in this simulation relate to monopoly power and are aligned to Standard 2 – Decision making, Standard 4 –Incentives, and Standard 9 – Competition and market structure. The student groups represent firms in a market with a few large firms. The firms have to decide how much product to produce while trying to maximize their profits. During the middle of the simulation, the firms are given the opportunity to collude and monopolize the market. When this happens, the incentive to cheat on the cartel (monopoly), puts the students in the position to see the impact of this type of market structure.
The third simulation is called “Show Me the Money: A Fractional Reserve Banking Simulation” Appendix E (Show Me the Money, 2010). This simulation was placed in the macroeconomic section of this new course. It is aligned to Standard 10-Institutions and Standard 11-Money and Inflation. In this simulation, the students play the role of bankers and consumers. Money is deposited into banks and then loaned to consumers. This puts the students in a position to grasp the idea of fractional banking and how interest rates is determined, how they affect the bank profits, and how they affect the supply of money in the economy.

These simulations that I have incorporated into my new high school economics curriculum have definitely added excitement to my classes. The students seem to look forward to each simulation that we do. Do these simulations always go as planned? The answer is no they do not. Each simulation depends on the academic level of the student, their types of personalities, and the chemistry of each class. If a simulation did not go according to plan, I usually will do an evaluation of the simulation. I’ll review the procedures I followed and try to analyze the way I instructed the students. I have made changes in the instructions and in the order of the procedures of these simulations. This has allowed for a better success rate for these simulations.

Chapter 4
Conclusion

Five years have passed since I began the revamping of my high school economics curriculum. I have made some changes in my curriculum in terms of coverage time for certain units and concepts. Also I have adjusted some of the simulations that I incorporated into my classroom. I found new and more interactive simulation to try in my economics classes. I’ve
also adjusted when I introduce the simulation during the unit. Sometimes it was better to do the simulation towards the end of the unit rather than the beginning and vice versa.

The teaching of this new curriculum during these past five years has had an impact on my students. Some of my students have gone on and have done well in Advanced Placement economics classes as well as college economics classes. The top students in my classes have competed in the yearly Economics Challenge Contest and have won the state and regional competitions for the past five years. From teaching a teaching standpoint, I feel that teaching economics in this way has had a strong effect on my students. How do I know? The evaluation tool that I currently use is the Test of Economic Literacy (TEL). This test, given at the beginning of my class and at the end of my class gives me some numerical indication of the impact of my new curriculum. However, there is a need for more evaluation! I am interested in surveying my students after they complete my class and after the students take their next economics class. I want to find out if teaching both microeconomics and macroeconomics in a one semester economics class helped them to better understand the economic concepts they covered in their next class.

In terms of simulations and student engagement, I already survey my students at the end of each semester because we are required to assess our classes with a course evaluation. However, I want to survey the students specifically about their engagement with the class concepts during our simulations. I also am interested in videotaping my students in class when they are involved in a class simulation so I can determine if the students are truly engaged when the simulation is taking place. I think I could combine these two areas of evaluations with my own personal descriptions of my class during the simulations. This would allow me to
triangulate my findings and would allow me to better understand the phenomena that take place in my class when I use simulations to teach economic concepts.

The next question for me is where do I take my class from here? I feel that the revamping of my high school economics curriculum has helped me make a stronger impact on the lives of my students. Can I improve on this class? What can I do to continue to engage my students as the economic environment around them changes? Observing that the technology generation is upon us, it is my responsibility as a high school teacher to keep up with the accelerating changes that we are experiencing. Students learning experiences and learning styles are constantly changing. I will have to make adjustments to my course curriculum structure according to changes in the economic standards. Global economic changes and changes in the United States economy might bring relevance to different concepts to be covered. Also, simulations will probably involve the use of different technologies. I will have to adapt to these changes and incorporate them into my classes. Hopefully, by taking this attitude, I will put my students in the best position to understand the economic world we live in.
References


Appendix A: Microeconomics Curriculum Structure

Microeconomics One-Semester Course:

I. **Fundamental Economic concepts**
   Week 1
   
   A. Defining Economics
      1) What is economics?
      2) Economics as a science
   
   B. Scarcity
      1) Resources
      2) Wants
   
   C. Choice/Opportunity Cost
      Week 2
   
   D. Self–interest
   
   E. Trade
      Week 3
      1) Specialization
      2) Absolute Advantage
      3) Comparative Advantage
   
   F. Demand and Supply
      Weeks 4-6
      1) Price floors and ceilings
      2) Elasticity
   
   G. Government Intervention in markets
      Weeks 7-9
      1) Taxes
      2) Externalities
      3) Public and Private goods - property rights
II. Microeconomic Concepts

A. Costs

1) Short run vs. Long run
2) Fixed vs. variable
3) Implicit vs. explicit
4) Law of diminishing marginal returns
5) Cost curves

B. Perfect Competition

1) Characteristics
2) Firm vs. market
3) Profit
4) Short run vs. long run

C. Monopoly

1) Characteristics
2) Barriers to entry
3) Profit
D. Oligopoly  Week 15-16
  1) Characteristics
  2) Profit
  3) Game theory
  4) Cartels

E. Monopolistic Competition  Week 17
  1) Characteristics
  2) Profit

F. Labor Market  Weeks 18-20
  1) Competition
  2) Derived demand
  3) Wage determination
Appendix B: Voluntary National Content Standards in Economics


**Standard 1: Scarcity**
Productive resources are limited. Therefore, people cannot have all the goods and services they want; as a result, they must choose some things and give up others.


**Standard 2: Decision Making**
Effective decision making requires comparing the additional costs of alternatives with the additional benefits. Many choices involve doing a little more or a little less of something: few choices are "all or nothing" decisions.

Related concepts: Decision Making, Profit Motive, Benefit, Costs, Marginal Analysis, Profit, Profit Maximization, Cost/Benefit Analysis

**Standard 3: Allocation**
Different methods can be used to allocate goods and services. People acting individually or collectively must choose which methods to use to allocate different kinds of goods and services.

Related concepts: Economic Systems, Market Structure, Supply, Command Economy, Market Economy, Traditional Economy

**Standard 4: Incentives**
People usually respond predictably to positive and negative incentives.

Related concepts: Choice, Incentive

**Standard 5: Trade**
Voluntary exchange occurs only when all participating parties expect to gain. This is true for trade among individuals or organizations within a nation, and among individuals or organizations in different nations.

Related concepts: Barriers to Trade, Barter, Exports, Imports, Voluntary Exchange, Exchange, Exchange Rate
Standard 6: Specialization
When individuals, regions, and nations specialize in what they can produce at the lowest cost and then trade with others, both production and consumption increase.

Related concepts: Division of Labor, Production, Productive Resources, Specialization, Factor Endowments, Gains from Trade, Relative Price, Transaction Costs, Factors of Production, Full Employment

Standard 7: Markets and Prices
A market exists when buyers and sellers interact. This interaction determines market prices and thereby allocates scarce goods and services.

Related concepts: Market Structure, Markets, Price Floor, Price Stability, Quantity Demanded, Quantity Supplied, Relative Price, Exchange Rate

Standard 8: Role of Prices
Prices sends signals and provides incentives to buyers and sellers. When supply or demand changes, market prices adjust, affecting incentives.


Standard 9: Competition and Market Structure
Competition among sellers lowers costs and prices, and encourages producers to produce what consumers are willing and able to buy. Competition among buyers increases prices and allocates goods and services to those people who are willing and able to pay the most for them.

Related concepts: Market Structure, Non-price Competition, Levels of Competition

Standard 10: Institutions
Institutions evolve and are created to help individuals and groups accomplish their goals. Banks, labor unions, markets, corporations, legal systems, and not-for-profit organizations are examples of important institutions. A different kind of institution, clearly defined and enforced property rights, is essential to a market economy.

Related concepts: Legal and Social Framework, Mortgage, Borrower, Interest, Labor Union, Legal Forms of Business, Legal Foundations of a Market Economy, Nonprofit Organization, Property Rights, Banking

Standard 11: Money and Inflation
Money makes it easier to trade, borrow, save, invest, and compare the value of goods and services. The amount of money in the economy affects the overall price level. Inflation is an increase in the overall price level that reduces the value of money.
Standard 12: Interest Rates
Interest rates, adjusted for inflation, rise and fall to balance the amount saved with the amount borrowed, which affects the allocation of scarce resources between present and future uses.

Related concepts: Interest Rate, Monetary Policy, Real vs. Nominal, Risk, Investing, Savers, Savings

Standard 13: Income
Income for most people is determined by the market value of the productive resources they sell. What workers earn primarily depends on the market value of what they produce.

Related concepts: Human Resources, Derived Demand, Functional Distribution of Income, Labor, Labor Market, Marginal Resource Product, Personal Distribution of Income, Wage, Aggregate Demand (AD), Aggregate Supply (AS), Demand, Prices of Inputs, Functional Distribution

Standard 14: Entrepreneurship
Entrepreneurs take on the calculated risk of starting new businesses, either by embarking on new ventures similar to existing ones or by introducing new innovations. Entrepreneurial innovation is an important source of economic growth.

Related concepts: Taxation, Costs, Costs of Production, Entrepreneur, Risk, Taxes, Cost/Benefit Analysis, Innovation, Entrepreneurship, Inventors

Standard 15: Economic Growth
Investment in factories, machinery, new technology, and in the health, education, and training of people stimulates economic growth and can raise future standards of living.


Standard 16: Role of Government and Market Failure
There is an economic role for government in a market economy whenever the benefits of a government policy outweigh its costs. Governments often provide for national defense, address environmental concerns, define and protect property rights, and attempt to make markets more competitive. Most government policies also have direct or indirect effects on people’s incomes.

**Standard 17: Economic Fluctuations**
Costs of government policies sometimes exceed benefits. This may occur because of incentives facing voters, government officials, and government employees, because of actions by special interest groups that can impose costs on the general public, or because social goals other than economic efficiency are being pursued.

Related concepts: Cost/Benefit Analysis, Benefit, Costs, Special Interest Group, Barriers to Trade

**Standard 18: Economic Fluctuations**
Fluctuations in a nation’s overall levels of income, employment, and prices are determined by the interaction of spending and production decisions made by all households, firms, government agencies, and others in the economy. Recessions occur when overall levels of income and employment decline.

Related concepts: Gross Domestic Product (GDP), Macroeconomic Indicators, Nominal Gross Domestic Product (GDP), Per Capita Gross Domestic Product (GDP), Potential Gross Domestic Product (GDP), Real Gross Domestic Product (GDP), Circular Flow

**Standard 19: Unemployment and Inflation**
Unemployment imposes costs on individuals and the overall economy. Inflation, both expected and unexpected, also imposes costs on individuals and the overall economy. Unemployment increases during recessions and decreases during recoveries.

Related concepts: Types of Unemployment, Causes of inflation, Consumer Price Index (CPI), Deflation, Labor Force, Unemployment, Unemployment Rate, Inflation

**Standard 20: Fiscal and Monetary Policy**
Federal government budgetary policy and the Federal Reserve System’s monetary policy influence the overall levels of employment, output, and prices.

Related concepts: Inflation, National Debt, Tools of the Federal Reserve, Discount Rate, Federal Budget, Fiscal Policy, Monetary Policy, Open Market Operations, Reserve Requirements, Budget, Budget Deficit, Central Banking System, Budget Surplus, Causes of inflation
Appendix C

The Magic of Markets: Trade Creates Wealth

**Concepts:**

- Trade
- Voluntary exchange
- Costs
- Benefits
- Property Rights

**Economic Content Standards:**

**Standard 5: Voluntary Exchange**

Voluntary exchange occurs only when all participating parties expect to gain. This is true for trade among individuals or organizations within a nation, and among individuals or organizations in different nations.

- Exchange is trading goods and services with people for other goods and services or money.
- People voluntarily exchange goods and services because they expect to be better off after the exchange.
- When people buy something, they value it more than it costs them; when people sell something, they value it less than the payment they receive.

**Lesson Description:**

This lesson involves students in a trading simulation designed to illustrate a complex marketplace in which goods and services are traded. Students use this experience to investigate the conditions that encourage or discourage trade among individuals.

**Time Required:**

One class period.
**Materials:**

A large number of small, easy to exchange items – such as miniature candy bars, small boxes of raisins, inexpensive small toys, packages of sticky notes, pencils, stickers, library passes, hall passes, answers to a quiz, etc., and enough small brown bags for each student.

**Procedure:**

1. Before beginning the simulation, place the trading articles, unequally, in brown paper bags and seal them. Divide the bags into groups of about 5 or 6, depending on class size, and mark all bags in each group with the same colored dot or letter. Mix all the bags together in a large box or trash bag.

2. Explain to students that today they have an opportunity to participate in a trading activity. The purpose of the activity is to explore why people trade.

3. Ask, “Why do people trade?” Record some student responses on the board and indicate that these responses are hypotheses. Explain to the class that today’s activity will provide information and experience with which to test the hypotheses.

4. Describe the following situation to the class. Imagine that a teenage music lover walks into a music store, picks out the latest CD by his favorite artist and pays the owner $18. Who gained and who lost in this transaction?

   (Both people gained in the trade. The music lover gave up something of lesser value, $18, to get something of more value, the CD. The owner gave up something of lesser value, the CD, to get something of more value, $18. Both the music lover and owner ended up with something of more value to them. Hence, they both gain.)

5. Announce to students that you are going to give them bags, which they will then own, and ask them not to open the bags until told to do so. Randomly distribute the bags and emphasize “Whatever is in the bag is yours.”

6. Ask students to open their bags and look at the object WITHOUT removing it from the bag or showing it to anyone else. Direct students to rate their satisfaction with the bags using a show of hands and a 1-5 rating system in which 5 is high and 1 is low.

   *(Ask for a show of hands for each rating – 1, 2, 3, etc., and record tally on the board or overhead transparency. Caution: Ensure that every student votes in each round.)*

7. Tell students they may now take the objects out of the bags. Direct them to move to designated locations around the room according to the symbol (or color) on their bags. Remind students that “whatever is in the bag is yours,” and that they may trade or not, open the package or not, trade parts or all or nothing. After several minutes, direct students to return to their seats. Repeat the 1-5 evaluation by show of hands, reminding students to rate what they now have in their possession, and reminding them that they must rate their bags again *whether they traded or not.*
(Note that students may change their ratings even if they don’t trade. Be sure that every student votes, even if he hasn’t traded or changed his satisfaction rating. Record the tally on the board with a different colored marker than the first tally.)

8. Conduct one or more additional trading rounds, combining groups, etc. with the last round involving all class members. In each successive round, increase the size of the trading area by combining groups. (For example, blues and greens may trade, yellows and reds may trade, etc.) In the last round allow students to trade with anyone in the class. Do a “satisfaction” rating after each round and record the tally.

9. While the students are trading, or after all trading is completed, calculate the total “satisfaction points” for each round. Record the total below each tally.

**Debriefing Questions:**

1. How many people made trades?
   - Ask several traders what they traded and why.
   - Follow the students’ explanations by asking how they felt after the trade. *(Most students will be “happier,” and will feel that they got the best end of the deal.)*
   - Find the student who was the other party to the exchange and ask why he/she traded and how he/she felt after the trade. *(Most of the trading partners will also be “happier.” If a student does not report feeling better off, find out why. This is a chance to emphasize that costs occur in the future and that sometimes we make mistakes in anticipating that we’ll benefit more than we actually do. See debriefing questions on cost below.)* *(Most of the students will have made trades; however, there will be a few who were either satisfied with what they had and did not trade, or who had something that no one would trade to obtain.)*

2. Go back to some of the students who discussed their trades in response to question #1 and ask what it cost to make the exchange. *(Students had to give up some or all of what was in their possession in order to make the exchange. Emphasize the definition of opportunity cost as the foregone alternative. Emphasize that costs exist because of scarcity.)*

3. Did anyone trade more than once? Why? Did anyone not trade? Why?
   *(Several people should have made numerous trades. Elicit articulation of the fact that the trades continued only as long as the traders perceived they would continue to benefit. Even the person making multiple trades stopped when anticipated no gain from the next trade. Then call on some of the students who did not trade at all, and ask why they didn’t. Expect to hear either that the person saw nothing he valued more than what he had originally and wouldn’t trade, or that no one else valued what was originally in the bag, so the person couldn’t trade. Emphasize, again, that voluntary trade is based on the mutual perception of benefit.)*

4. Point to the tally of satisfaction points on the board as empirical evidence of “increased wealth.”
   - How did wealth increase when nothing new was added? *(There was more wealth because through voluntary trade, the articles in the bag went from people who*
valued them less to people who valued them more, increasing the wealth of both trading partners.)

- What generalizations might we make about trade based on how the tally changed from round to round? (Expect a variety of answers, including: The value of things is subjective; some people value a particular thing more than other people do. Some students may comment that subjective valuations change just by having something to compare to. Some people changed the ratings of their objects after seeing what other people had. Having more trading partners was better than having few. More trades meant more satisfaction points; more trade means more wealth. Etc.)

5. Why do people trade? (People trade to get something of more value by giving up something of less value.)
   - Did trading behavior confirm or contradict the hypotheses we listed at the beginning of the activity? (Often the initial responses are “to get something they don’t have, or to take advantage or sucker someone.” Students should see that trade only takes place when both parties expect to gain. Sometimes, however, the gain is not material as when students trade to make someone else feel good.)

6. Was it possible to trade without bearing a cost? Why? (No. Because of scarcity, we cannot have everything we want. There is always a trade-off.)
   - What was the cost and what was the benefit of each trade? (What was traded away was the cost of the trade. What was received was the benefit.)

7. What were the necessary conditions for wealth-creating trade to take place? (Emphasize the importance of 2 “rules of the game” (institutions):
   - property rights – remind students that you emphasized that what was in the bags was theirs, and
   - voluntary exchange – no one was forced to make an exchange.
   - What would have happened if you had been forced to trade? (Students should recognize that they would not have experienced the same overall increase in satisfaction.)

Encourage students to look for the role of institutions as we continue our study of economics.

8. Does the creation of wealth make everyone happy? (Definitely not. Students who had little to trade may not have been pleased. Students who couldn’t find what they wanted may have been dissatisfied. Students who traded and then realized they missed a better trade may have been unhappy. Students who either underestimated the costs of a trade or overestimated its benefits — or both — may have been unhappy. Emphasize that economists don’t say that trade make people happy; they argue that it creates wealth. Also note that saying “trade creates wealth” doesn’t mean that every individual person
will be wealthier. Economists merely maintain that trade creates wealth overall and that trade will continue if people anticipate that they will be better off after the trade than if they do not trade at all.)

9. If we were to observe twenty people buying items at an outdoor Farmers market, what could we conclude about their gains and losses? Their wealth?
(Each transaction takes place because both parties expect to gain. If one party does not expect to gain, there is no transaction and we would have nothing to observe! Therefore, we observe people trading money for we can conclude their wealth and the wealth of the grocery store has increased.)
Appendix D

Cartels and Competition

Concepts:

- Incentives matter
- Increases in supply lead to reductions in price
- Cartels increase their profits and market prices by restricting production
- Desire for profit undermines cartel agreements

Materials:

- Balance Sheet – 1 per team
- Production Decision Cards – 25 to 30 cards per game
- Production Decision Worksheet – 1 per student
- Demand Forecast (overhead transparency)
- Market Demand (actual) (overhead transparencies)
- Production Record (1 overhead transparency)
- Prizes for companies making more than $300
- Grand prize for most profit

Procedure:

1. Form 6 companies of 4-6 students. *If necessary, increase the company size, but do not increase the number of companies.*

   - Explain that the companies are all producers of the same commodity, selling their product in the same market. Mention that, while there are certainly others who are capable of entering the market, at this point in time, there are only 6 major companies who do almost 98% of the business, worldwide.
   - Emphasize that the goal of each company is to make as much profit as possible.
     Announce that there will be prizes for all companies earning more than $300 profit and an additional prize for the company that earns the most profit.

2. Distribute one Production Decision Card to each company. Explain that the firm must decide how much to produce, given the cost of production, the amount of money they have on hand, and their anticipation of the demand for the product. Remind them that they must pay the costs of production at the time they turn in their production decisions.

3. Display the Demand Forecast overhead. Explain that the economic research department will provide them with the results of market research before each round, and while there is no guarantee that actual demand will be exactly the same as the forecast, the forecasts have been highly reliable in the past. Distribute the Production Decision Worksheet and use the overhead
transparency to guide the class through the problems. (Answers: #4 = $150, #5 = -$35) 

(Note: Resist the temptation to skip this step. Don’t assume that because you have good math students, they’ll figure it out. It’s the vocabulary of the procedure, not the arithmetic, that they need to practice. Doing the worksheet at the beginning allows students to concentrate on decision-making during the simulation.)

4. Distribute the balance sheets, and point out that each team has a starting balance of $150. Remind them that the goal is to have the biggest balance at the end of the game, and that they must have at least $300 to earn any prize. (Do NOT tell them how many rounds will be played.) Leave the Demand Forecast transparency on the overhead. Allow companies time to discuss the problem and determine the amount they wish to produce in Round 1. Each team must record the number produced on the Production Decision Card and must subtract the total production cost from their balance sheet. Collect the cards and tally the total production on the Production Record overhead (or on the board).

5. Display one of the Market Demand overheads (choose randomly) and help the class interpret the graph. Total the production for all companies, and draw a vertical line on the transparency to correspond with the total production. (If the class has had the necessary background, discuss the meaning of a vertical supply curve.) Explain to the class that the intersection of the vertical line and the Market Demand curve indicates the market clearing price, the amount they will be paid for each unit they produced.

Instruct students to enter their revenue (market clearing price X the number of units produced) on their balance sheets. Instruct teams to figure out how much profit they made and to consider strategy for the next round.

6. Distribute new Production Decision Cards and proceed as in Round 1.

7. Before beginning Round 3, announce that there will be a trade convention; a common activity in which firms in an industry send representatives to a convention to see new technology, innovations, give awards for industry performance, etc. Each student team may send one representative.

(It may not be necessary to belabor this process. Some students may see, in earlier rounds, an advantage to be gained by collaboration. In that case, as Round 3 begins, simply say certainly members of different companies run into each other from time to time, as at trade conventions.)

8. After the negotiation period, direct representatives to return to their companies. Stop all communication between companies. Distribute the Production Decision Cards and proceed with Round 3.


(Note: Teachers must be sensitive to students’ reactions in determining how many rounds of the game to play. For example, students should see the advantage of collusion by round 3. If, however, you feel that they are still exploring options in round 2, play a third round without collaboration and set up the “trade convention” before round 4. Similarly, be aware of student
response in the rounds after the collaboration. If students do not collude as a result of collaboration, do some debriefing after the payout in that round. Then allow collaboration in the next round. If students agree to restrict supply and all companies uphold the agreement, proceed with another round until a team, discovers the advantage of not restricting supply when all other companies have agreed to do so.)

10. End the simulation by giving out the prizes for companies with profits over $300 and the grand prize for the company with the most profit. \(\text{Profit} = \text{final balance} - \$150 \text{beginning balance}\)

11. Debriefing questions might include:

- Which team made the most money? What was your strategy?
- Which team made the least? What was your strategy and why did it fail?
- Why did you want to talk to the other teams/Companies?
- Why did you agree to set production levels? What was the impact on the market of such an agreement? What was the impact on your profit?
- How did you decide how much to produce?
- Did agreeing to set production levels work? Why? Why not?
- How did the profit motive, the desire of teams to make profit, act as an incentive? What behaviors did this incentive encourage?
- Looking at all the rounds of the simulation, make a generalization about the relationship between price and level of production (supply)
- How does the creation of a cartel affect consumers – both in terms of product availability and in terms of price?
- Predict what happens – in the short run and in the long run – in markets that do NOT prohibit collusion among producers.
- Evaluate the argument that it doesn’t matter if producers try to collude; the system of incentives Will undermine their efforts. (You might want to read excerpts from Adam Smith at this point, or have ready a reading assignment for homework.)
- Predict the impact on the market of rules or laws that prohibit collusion between producers.
- Predict the impact on the market of rules or laws that enforce cooperation among producers – for example: licensing requirements for doctors, teachers, hairdressers, taxicabs; or regulatory agencies etc.
Appendix E

Show Me The Money!

A Fractional Reserve Banking Simulation

Introduction:

Fractional Reserve Banking is a fundamental part of all modern economies. First introduced in Europe in the 16th Century, bankers ever since have made sure to lend out most - but not all - of the deposits held by their institutions. Originally the reason for holding a fraction in reserve was to protect the bank in case many or most of its depositors needed cash at the same time. Today there are reserve requirements imposed on American banks by the Federal Reserve System in its ongoing effort to manage the nation's money supply.

Whether imposed by prudence or a banking regulation system, fractional reserve banking enables banks to "create money" through lending, thereby expanding the money supply during times of economic growth.

Objectives: After this lesson students will be able to

- Calculate the amount of money created by banks in the classroom economy.
- Appreciate the role of banks as creators of money.
- Understand the importance of fractional reserve banking in the process of money creation.

National Economics Standards Addressed:

Standard 10: Role of Economic Institutions
Institutions evolve in market economies to help individuals and groups accomplish their goals. Banks, labor unions, corporations, legal systems, and not-for-profit organizations are examples of important institutions. A different kind of institution, clearly defined and enforced property rights, is essential to a market economy.
Standard 11: Role of Money
Money makes it easier to trade, borrow, save, invest, and compare the value of goods and services

Intended Audience: Middle and High School students studying US History or Economics

Class Time Required: 45 to 50 minutes

Materials Required:
- Copies of Handout 1 for entire class
- Up to 6 Copies each of Handouts 2-1, 2-2, 2-3 and 2-4 for bankers (It's best to staple the four pages of handout 2 together before the simulation)
- Three copies of Handout 2-5 per bank (These should be cut up with scissors before the simulation begins.)
- Copies of Handouts 3, 4 & 5 (8 or 9 copies of each)
- Overhead or copies of Handout 6 for entire class
- Overhead or copies of Handout 7 for entire class
- 6 Calculators
- Chocolate or candy to give as prizes

Procedures:

This activity consists of 11 steps:

1. GENERAL DISCUSSION - Where does money come from?

   This can be done with a question on the white board, or a short writing assignment that students can answer at their desks. Students will normally say from "the government", which isn't wrong. The direction you want to suggest, however, is that there may be other agencies out there creating money every day.
2. STARTING THE ACTIVITY: Explain that today's activity is designed to answer the question of where money comes from. Then go over the role descriptions with the class (Handout 1). When the class understands the roles and general procedure of the game, go ahead and select students for each role.

For a class of 35 you will need

6 Banks - 2 students per bank - Handout 2 for each bank

Three pages of handout 2.5 per bank, preferably cut up before hand

23 Borrowers - Handout 3, 4 & 5 (7 or 8 copies of each)

For smaller classes: The ratio of bankers to borrower should be about six borrowers per bank, so a class of 25 would have 4 banks, a class of 20 can get by with only 3 banks.

Each student should get a copy of the handout for his or her particular role.

3. ROUND 1: Give students a moment to read over the particulars of their roles, and then ask if everyone is ready for round one. At this point there are two things to stress with your classes:

- *First, borrowers can borrow only one time per round of the game.*
- *Second, no cash changes hands in this game.* Borrowers get Loan Certificates rather than money.
- *Third, successful borrowers must deposit their loan certificates into a bank other than the one which lent them the funds.* This is important for students to understand - loans become deposits. You'll return to this idea in the debriefing of round 1.

When everyone is ready, go ahead into the first round of the activity, allow borrowers to mingle with bankers and attempt to get funding for their special projects. Round one should last about five minutes - enough time for every borrower to speak to at least two bankers. Successful borrowers will get loan certificates (handout 2.5) - these will be essential for round 2 of the game.
4. DEBRIEF ROUND 1, asking the following questions.

- How many borrowers were able to get funding in round 1?
- For those who were turned down, why did the bank say no?
- How many bankers met their goal of lending 80% of their assets?
- When those dollars were lent, where did they go?
- (The answer to the last question is crucial. When banks lend money it inevitably appears as deposits in some part of the banking system. You can discuss this for a minute with the class. When a bank lends money to someone, it creates deposits for that person. The person then spends the money on a car or something else, but the seller of the car puts the loaned funds into a bank before paying his employees - banks are central to nearly every transaction in an economy.)
- Each bank started with $10,000 - Bankers do you have more than that now? How come?
- What is all that extra money doing in the economy?

5. GO ON TO ROUND 2: In Round 2 successful Round 1 borrowers must deposit their funds. They can deposit them in any bank other than the one where they borrowed. Bankers need to record their deposits on the Bank Balance sheet. This step shows students that loans from one bank become deposits in another bank after the money is used (spent) by the borrower. This should take about 3 minutes.

After all the bankers have calculated how much they have in new deposits remind them that they can only lend 80% of the new deposits. This should take the bankers about 2 or 3 minutes to calculate.

Go on with borrowing activity in round 2. Round 2 lasts roughly five minutes.

6. DEBRIEF ROUND 2 using the following questions:

- Did all borrowers make deposits into another bank? (The answer here needs to be yes. All loans must become deposits somewhere.)
Borrowers how did you decide which bank to deposit in? How do people decide in

- real life? *(In real life interest rates attract borrowers, but in this simulation we’re keeping things simple in order to focus on the concept of money creation.)*
- Did all bankers receive some new deposits? *(This answer, too, must be yes. Every bank should have new deposits, but some will have more than others.)*
- What do you think this symbolizes in the actual economy? *(In the actual economy this symbolizes what happens to the money after the borrowers spend it. Whoever receives those funds puts them into the bank - so a loan in one bank becomes a deposit in another bank.)*
- Bankers, do you know how to figure out how much you have to lend in round 3? *(This is where the calculator comes in handy - bankers can lend only 80% of their new deposits in round 3.)*
- Borrowers, are you ready?

You may have some students who have achieved their goal after round 2. If so, reward them with candy (or whatever reward you’re using) and tell them to sit quietly. If you want to include those students who have finished you can make them bank examiners to check the math of each bank in the simulation.

7. GO ON TO ROUND 3: In Round 3 successful round 2 borrowers must deposit their funds. They can deposit them in **any bank other than the one where they borrowed**. Bankers need to record their deposits on the Bank Balance sheet. This step shows students that loans from one bank become deposits in another bank after the money is used (spent) by the borrower. This should take about 3 minutes.

After all the bankers have calculated how much they have in new deposits remind them that they can only lend 80% of the new deposits. This should take the bankers about 2 or 3 minutes to calculate.

At the end of round 3 direct the bankers to start working on their Banking Summary Sheet (the last page of **handout 2**). Debrief the borrowers as the bankers record their data.

8. DEBRIEF ROUND 3 using the same questions that you used for round 1:
• How many borrowers were able to get funding in round 3?
• For those who were turned down, why did the bank say no?
• How many bankers met their goal of lending 80% of their assets?
• When those dollars were lent, where did they go? (The answer to the last question is crucial. When banks lend money it inevitably appears as deposits in some part of the banking system. You can discuss this for a minute with the class. When a bank lends money to someone, it creates deposits for that person. The person then spends the money on a car or something else, but the seller of the car puts the loaned funds into a bank before paying his employees - banks are central to nearly every transaction in an economy.)
• Each bank started with $10,000 - Bankers do you have more than that now? How come?
• What is all that extra money doing in the economy?
• 9. CALCULATE THE MONEY SUPPLY: Once the bankers have gathered their data, write the numbers on the white board. Go to the graphing the money supply handout. (Handout #6) Have a student in class add it up using a calculator and then graph the growth in money from round 1 to round 3. Have students fill in the graph with the amounts of total deposits in each round.

• Handout 6 can also be used as a written assessment for the simulation also. Once you have the bankers’ data, write it up on the whiteboard or on an overhead. Have the kids graph it and then answer the question in writing at the bottom of the page. They can write their names on the top and you can collect them.

• 10. DEBRIEF THE SIMULATION using the questions in Handout 7. This can be done as an overhead or a handout.

• 11. Give chocolate or candy to the bankers who got the most bonus cash, and to the borrowers who were able to achieve their borrowing goals. This should be all borrowers by the end of round 3.
Handout 1

*Fractional Reserve Banking Simulation*

**Role Descriptions**

This simulation has two roles: bankers and borrowers. Read the summary of these roles, then go on to the game procedures.

<table>
<thead>
<tr>
<th>Bankers</th>
<th>Borrowers</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2 students per bank)</td>
<td>(all non-banker students)</td>
</tr>
<tr>
<td>Calculator Required</td>
<td></td>
</tr>
</tbody>
</table>

**Objective:**

*To lend out money to borrowers, following some important rules:*

- You cannot lend more than 80% of the assets in your bank in any round.
- You get 10 points for each loan to a Low Risk borrower, 5 points for each loan to a Medium Risk borrower and 3 points for each loan to a High Risk borrower.
- You must fill out your balance sheet at the end of every round.

**Objective:**

*To borrow money from a bank in each round of the game.*

- Your goal is to borrow the amount of money shown in your role description.
- You may make ONE loan per round.
- You may not be able to borrow all of the money at once. In that case, you should try to borrow more money in the next round.
- When asked your level of risk you MUST answer truthfully.
- You’ll get a loan certificate for each loan you get. This must be deposited in another bank.
- You must fill out your balance sheet at the end of each round.

**Procedure**

- First, you’ll get a balance sheet with specific role information. You’ll need to know this information in order to apply for loans or lend money.
- Second, our simulation will consist of three rounds. In each one you’ll try to achieve your role’s objective - carefully following all the rules of the game.
- Finally, we’ll track what happened in our economy and give prizes.
Handout 2-1

Fractional Reserve Banking Simulation

Bank Balance Sheet - Round 1

Congratulations! You have just opened a bank here in Smallville, USA. You have $10,000 in new deposits and the banking regulators have established you can only lend 80% of your new deposits in any given round of the game.

Your goal is to amass bonus dollars by making loans to the people of Smallville, but you have to be careful. There are three kinds of borrowers: Low Risk, Medium Risk and High Risk. For each loan you make you get bonus dollars -

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>Points Earned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-Risk Loan</td>
<td>10 points</td>
</tr>
<tr>
<td>Medium-Risk Loan</td>
<td>5 points</td>
</tr>
<tr>
<td>High-Risk Loan</td>
<td>3 points</td>
</tr>
</tbody>
</table>

You must also keep track of your lending in the tables below.

Round 1 Beginning Funds

<table>
<thead>
<tr>
<th>Deposits</th>
<th>Lendable Funds</th>
<th>Reserve Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>$10,000</td>
<td>$8,000</td>
<td>$2,000</td>
</tr>
</tbody>
</table>

Round 1 Lending

<table>
<thead>
<tr>
<th>Borrower Name</th>
<th>Risk Level</th>
<th>Funds Lent</th>
<th>Points Earned</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>TOTALS for ROUND 1</td>
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</table>

Round 1 Deposits

<table>
<thead>
<tr>
<th>Depositor Name</th>
<th>Amount Deposited</th>
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</tbody>
</table>
**TOTAL NEW DEPOSITS FOR NEXT ROUND**

<table>
<thead>
<tr>
<th>Banker 1</th>
<th>Banker 2</th>
</tr>
</thead>
</table>

**BANKERS - YOUR NEW DEPOSITS FROM THIS ROUND ARE USED FOR MAKING LOANS IN THE NEXT ROUND.**
Handout 2-2

Fractional Reserve Banking Simulation

Bank Balance Sheet - Round 2

Are you ready for round 2? Remember that your lending in round 1 creates new deposits for your bank in round 2. You can now lend up to 80% of those new deposits - so use your calculators to get the correct figures.

Round 2

<table>
<thead>
<tr>
<th>New Deposits</th>
<th>Lendable Funds</th>
<th>Reserve Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Funds Deposited</strong></td>
<td><strong>(80% of New Deposits)</strong></td>
<td><strong>(20% of New Deposits)</strong></td>
</tr>
<tr>
<td><strong>in Round 1</strong></td>
<td><strong>Use your calculator!</strong></td>
<td><strong>Use your calculator again!</strong></td>
</tr>
</tbody>
</table>

Round 2 Lending

<table>
<thead>
<tr>
<th>Borrower Name</th>
<th>Risk Level</th>
<th>Funds Lent</th>
<th>Points Earned</th>
</tr>
</thead>
<tbody>
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<td><strong>TOTALS for ROUND 2</strong></td>
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Round 2 Deposits

<table>
<thead>
<tr>
<th>Depositor Name</th>
<th>Amount Deposited</th>
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<tr>
<td><strong>TOTAL NEW DEPOSITS FOR NEXT ROUND</strong></td>
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</table>

Handout 2-3

Fractional Reserve Banking Simulation

Bank Balance Sheet - Round 3

Are you ready for round 2? Remember that your lending in round 1 creates new deposits for your bank in round 2. You can now lend up to 80% of those new deposits - so use your calculators to get the correct figures.

<table>
<thead>
<tr>
<th>New Deposits</th>
<th>Lendable Funds</th>
<th>Reserve Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funds lent out in Round 2</td>
<td>(80% of New Deposits)</td>
<td>(20% of New Deposits)</td>
</tr>
<tr>
<td>Use your calculator!</td>
<td>Use your calculator again!</td>
<td></td>
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</tbody>
</table>

Round 3 Lending

<table>
<thead>
<tr>
<th>Borrower Name</th>
<th>Risk Level</th>
<th>Funds Lent</th>
<th>Points Earned</th>
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<tbody>
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TOTALS for ROUND 3

Transfer these totals to the next page, your Banker Summary Sheet
## Round 3 Deposits

<table>
<thead>
<tr>
<th>Depositor Name</th>
<th>Amount Deposited</th>
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**TOTAL NEW DEPOSITS**

Once round 3 is complete go to your summary sheet and start filling in the data.
Handout 2-4

*Fractional Reserve Banking Simulation*

**Banker Simulation Summary Sheet**

Look over your data from the three rounds of the game and fill in the tables below.

**Lending Activity**

Transfer the data from your round 1, 2 and 3 balance sheets into the table below. Use your calculator to add the figures accurately.

<table>
<thead>
<tr>
<th>Round</th>
<th>New Deposits</th>
<th>Funds Lent out in each round</th>
<th>Reserve Funds in each round</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$10,000</td>
<td></td>
<td></td>
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<tr>
<td>2</td>
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<td></td>
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<td>3</td>
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<tr>
<td>Totals</td>
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</tbody>
</table>

**Points Earned**

Transfer your points earned from your round 1, 2 and 3 balance sheets into the table below. Use your calculator if necessary. There will be prizes for the bankers with the most points.

<table>
<thead>
<tr>
<th>Round</th>
<th>Points Earned</th>
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<tbody>
<tr>
<td>1</td>
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<tr>
<td>2</td>
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<td>3</td>
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<tr>
<td>Total Points Earned:</td>
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<td>LOAN CERTIFICATE</td>
<td>LOAN CERTIFICATE</td>
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<td>Banker Name: ________________________</td>
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<td>Amount: _______________</td>
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<td>Round: _______</td>
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<tr>
<td>Amount: _______________</td>
<td>Amount: _______________</td>
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</tbody>
</table>
You are a model citizen. You have borrowed money many times and always paid your loans on time. You have never missed a loan payment of any kind, ever. You now want to borrow money to remodel your house.

**Low Risk Borrower**  $6,000 for home remodel

Before you start the simulation, remember the following rules:

1. You can borrow only one time in each round of the game.
2. You must tell the banker your level of risk.
3. You can only borrow up to your goal stated above - it's okay to borrow less than your goal in each round.
4. You can borrow one time in each round of the game.

<table>
<thead>
<tr>
<th>Round</th>
<th>Banker from whom you borrowed</th>
<th>Amount you borrowed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
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</tr>
</tbody>
</table>

Total Borrowing over all 3 rounds =

You are worried about the future. Your hairline is receding and it's not so easy to get dates as it used to be. So you need to buy a new car! You haven't always paid your bills on time but eventually you get around to it.

**Medium Risk Borrower**

$4,000 for car down payment

Before you start the simulation, remember the following rules:

1. You can borrow only one time in each round of the game.
2. You must tell the banker your level of risk.
3. You can only borrow up to your goal stated above - it's okay to borrow less than your goal in each round.
4. You can borrow one time in each round of the game.

<table>
<thead>
<tr>
<th>Round</th>
<th>Banker from whom you borrowed</th>
<th>Amount you borrowed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
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<tr>
<td>3</td>
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</tbody>
</table>

Total Borrowing over all 3 rounds =
Fractional Reserve Banking Simulation

Borrower Balance Sheet

**Borrower C** - Pamela Plastic, Recovering Shop-a-holic

You have had a hard life. You were addicted to shopping for many years and ran up a lot of credit card bills. Now those are taken care of (you declared bankruptcy) and you want to borrow money to go to college.

**High Risk Borrower**

$3,000 for tuition at community college

Before you start the simulation, remember the following rules:

1. You can borrow only one time in each round of the game.
2. You must tell the banker your level of risk.
3. You can only borrow up to your goal stated above - it's okay to borrow less than your goal in each round.
4. You can borrow one time in each round of the game.

<table>
<thead>
<tr>
<th>Round</th>
<th>Banker from whom you borrowed</th>
<th>Amount you borrowed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
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<tr>
<td>2</td>
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<td></td>
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<tr>
<td>3</td>
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</tbody>
</table>

Total Borrowing over all 3 rounds =

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Handout 5
In our simulation today we started with the question "where does money come from?"
Let's think about that question as we graph the data from our bankers.

1. Remember that money supply is the total deposits (all banks included) in any round of the game. Ask the bankers how much they had in deposits at the start of round 1, round 2 and round 3. Graph these amounts above.

2. We ended with a lot more deposits than we started with. So the question is where did the new money come from? Write your answer in the space below.
Final Debriefing Questions

Now that we’ve finished this simulation, there are some important concepts to emphasize and review.

1. In this activity the incentive for banks to make loans was bonus bucks/candy. What incentive do banks have for making loans in the real world? What incentive do people have for keeping their money in the bank?

2. We started with a money supply of only $50,000. We finished with a whole lot more than that. Where did the extra money come from?

3. What would the borrowers do with all the money they borrowed? Would their activity be helpful or harmful for an economy? How can you tell?
4. In our simulation all of the loans were "good" loans because the borrowers all paid them back. What would happen in an economy where people stopped paying back their loans? What would banks be forced to do?

5. Our reserve requirement in this simulation was 20%. What would happen to the simulation if it were changed to 30%? How about if it were changed to only 10%?

6. Most economics textbooks say that banks "create" money. After our simulation do you agree? Why or why not?
Final Debriefing Questions

-Teacher Version -

1. In this activity the incentive for banks to make loans was bonus points/candy. What incentive do banks have for making loans in the real world? What incentive do people have for keeping their money in the bank?
   The answer here, of course, is interest. In the real world banks are “borrowing” money from depositors (to whom they pay interest) and lending it to borrowers (who pay interest to the bank).

2. We started with a money supply of only $50,000. We finished with a whole lot more than that. Where did the extra money come from?
   Loans that each bank made in an early round became deposits for a later round. This is how banks “create money.” Loans they make eventually become deposits in banks which can then be used to make new loans.

3. What would the borrowers do with all the money they borrowed? Would their activity be helpful or harmful for an economy? How can you tell?
   The borrowers would be hiring people to remodel their homes, buying cars and investing in college educations. All three of these activities would stimulate demand in the economy and could potentially be very helpful. If the economy were in a slow period this could be helpful. If the economy were already humming along near the peak of the business cycle then more lending could create inflation.

4. In our simulation all of the loans were “good” loans because the borrowers all paid them back. What would happen in an economy where people stopped paying back their loans? What would banks be forced to do?
   When people stop paying their loans off banks have to declare those loans to be “losses”. This makes the bank less profitable and also makes the bank much more cautious about lending money. When the banks slow or stop their lending the economy will slow down overall. Banks might be forced to repossess things purchased with borrowed money, or even to demand payment all at once from some of their other borrowers in order to stay in business.

5. Our reserve requirement in this simulation was 20%. What would happen to the simulation if it were changed to 30%? How about if it were changed to only 10%?
   If the reserve requirement is raised to 30% then banks would lend less money, earning fewer bonus dollars and borrowers would achieve their goals. If the reserve requirement were dropped to only 10% then bankers would lend more money, earning more bonus dollars and borrowers could achieve their goals.

6. Most economics textbooks say that banks “create” money. After our simulation do you agree? Why or why not?
   Most kids should agree with this by the end of the simulation, but there are some other views which are just as accurate. Some students could say that the same dollars are in more than one place, as indeed they are. Eighty percent of the bank deposits are loaned out, but they’re still considered as being “in the bank.”