

Joshua Hall · Kerianne Lawson *Editors*

Teaching Economics

Perspectives on Innovative
Economics Education

 Springer

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Chapter 1

The Development of Interactive Classroom Activities to Teach Economic Freedom to Students of Various Learning Styles



Signè Thomas

Abstract I created eight lessons exploring economic freedom, designed with student-centered learning in mind. Seven of the eight lessons are interactive, and six of those seven involve students working together in collaborative groups. Multiple lessons involve physical activity, two of which (Lesson 2 and Lesson 6) involve students running around the classroom during the lesson. The interactive activities are perfectly suited for the flipped classroom or flipped learning. These lessons can also be implemented in a traditional style classroom, if an instructor wants to break up their lecture with an interactive activity. These lessons are designed for high school and undergraduate students, and provide an educator with ready-to-use activities to use within their classroom to teach their students about various aspects of economic freedom. Each lesson has a theme, description, learning outcomes, procedure, a final thought, and a glossary. The lessons also include any necessary handouts such as readings or signs, student directions, team answer sheets, answer keys, visuals, and any other resources needed for the activity. These thorough materials will significantly reduce the amount of time it takes an instructor to prepare and implement the lessons in their classroom. I have received positive verbal and written feedback from educators in the USA and Canada, as well as from my own Honors Principles of Macroeconomics and Honors Principles of Microeconomics students at Florida State University.

1.1 Literature Review

A flipped or inverted classroom, or flipped learning, is a pedagogical method where the learning process is said to be “flipped” from the traditional style of lecture or “chalk and talk.” Rather than spending class time fully focused on a lecture, students

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do their reading assignments and watch lectures online outside of class time, so that class time can be utilized for engaging learning activities with the students (Roach 2014; Bishop and Verleger 2013). High school chemistry teachers Jonathan Bergmann and Aaron Sams are largely credited with the creation of this concept when they first started recording their chemistry lectures so students who missed class could view them online. The recordings spread, and they began utilizing class time for activities. The flipped classroom was born (Gasparic et al. 2017)! Its popularity grew in part due to the Khan Academy, an online system that has videos covering a large array of subjects that individuals can access at no monetary cost. The flipped classroom allows time spent in the classroom to be concentrated more toward active and collaborative learning (Roach 2014). Flipped classrooms tend to employ group interactive learning activities during class time to make the most out of time spent in the classroom.

As the concept of the flipped classroom evolved, so has the terminology for the concept. The concept first appeared in 2006 and was originally referred to as a flipped classroom, where video is used as a medium of teaching the subject matter and the teacher is at the center of instruction in the classroom. Later, the flipped mastery model emerged, which was similar to the aforementioned flipped classroom but it also adapted to the needs of individual learners. Now we have what is called flipped learning, which still makes use of videos to teach content but rather than the teacher being the center of instruction in the classroom, it is now the student at the center of the classroom (Gasparic et al. 2017). Flipped learning emphasizes rich learning experiences through methods that are student focused.

Research shows that the greater the incongruency between an economics instructor's teaching style and a student's learning style, the lower the student's performance in the economics course and the less the student is interested in the subject matter (Charkins et al. 1985). Others found supporting evidence when utilizing the Myers-Briggs Type Indicator to study student performance when taking into account a student's temperament type compared to their economics instructor's temperament type. Students whose temperament type matched that of their economics instructor performed better in the course than otherwise (Borg and Shapiro 1996). These findings suggest that economics instructors may want to incorporate numerous teaching styles in order to better reach students of various learning types. Research also supports the idea that when an economics instructor uses a variety of teaching styles, they are more likely to increase student performance, diversity of students, and student interest in economics (Bartlett 1996). Bartlett suggests that an instructor should encourage student interaction during class, and also recommends developing hands-on activities. By incorporating an array of teaching methods in one's economic class, an economics instructor can better reach students of various learning styles (Becker and Watts 1995, 1996). Becker and Watts suggest using hands-on demonstrations, classroom games, simulations, and the like as one of the ways to reach students, increase their learning, and increase student interest in the subject. They explain that while some students and teachers are natural-born listeners and lecturers, others prefer talking with their peers through discussions, and even others learn or teach best when using group activities that feature hands-on

demonstrations of economic concepts and relationships (Becker and Watts 1995, 1996). The latter are now commonly referred to as interactive activities, or “econ games.”

Some interactive activities involve physical activity. Physical activity has been shown to increase students’ attention, concentration, focus, cognition, memory, and academic achievement (Donnelly and Lambourne 2011; Budde et al. 2008; Rasberry et al. 2011). In a systematic review of the literature, Rasberry et al. (2011) explored connections between physical activity and academic performance. Nine different studies were included in the category of classroom-based physical activity, which included short periods of physical activity of 5–20 min within the classroom, some of which were incorporated into learning activities. The nine studies examined how these brief physical activities in a classroom setting affected cognitive skills (aptitude, attention, and memory), attitudes (mood), academic behaviors (on-task behavior and concentration), and academic achievement (standardized test scores, reading literacy scores, and math fluency scores). Four studies reported all positive classroom associations between physical activity and that of classroom behaviors and academic achievement (DellaValle et al. 1986; Maeda and Randall 2003; Mahar et al. 2006; Norlander et al. 2005). Eight of the nine studies Rasberry et al. (2011) and her colleagues reviewed suggest these classroom-based physical activities may have favorable associations with indicators of cognitive functioning, academic behaviors, and/or academic achievement. The ninth study found no relationship. No negative relationships were found in the nine studies reviewed (Rasberry et al. 2011).

1.2 The Creation of Eight Lessons in Economic Freedom

Interactive activities can be utilized to accommodate a diverse range of learning styles. I incorporate different pedagogical approaches and learning styles to reach each student in the manner(s) in which they best learn. Ultimately, I strive to captivate students and peak their interest in the subject matter. Interactive activities—also known as “econ games”—are one of the many ways I like to bring economics to life for students.

When designing interactive “econ games,” I account for different learning styles that are based on Howard Gardner’s (1993) Theory of Multiple Intelligences. One lesson will focus on engaging visual learners, while another will be focused on aural learners and geared toward developing one’s listening skills. Many of the activities involve more than one learning style at a time, merging different combinations of visual, aural, verbal, physical, social, and solitary learning styles. The purpose of these interactive activities is to engage different types of students to spark their curiosity in the subject matter and hopefully motivate them to learn more beyond the classroom.

In 2017, the Fraser Institute asked me to develop lessons that teach economic freedom to students in a fun, engaging manner (Thomas 2018). The Fraser Institute

is the publisher of the *Economic Freedom of the World* (EFW) annual report by Gwartney et al. (2017). The *Lessons in Economic Freedom* I developed consists of eight lessons (interactive activities or “econ games”). Lesson 1, “What Does This Map Represent?” utilizes the visual (spatial) learning style, a bit of the physical (kinesthetic) learning style, and the social (interpersonal) learning style. This lesson uses photos and data of various countries, and later utilizes the 2016 EFW map to engage the students to explore country differences. Students work collaboratively in groups to discuss and try to determine which countries are depicted, and use critical thinking to hypothesize what the map on the wall represents. The titles (and the like) within the map are covered up until the end of the activity, when the instructor reveals that the map represents economic freedom.

Based on the literature suggesting physical activity within classroom activities can increase attention, cognition, and even academic achievement (Donnelly and Lambourne 2011; Budde et al. 2008; Rasberry et al. 2011), Lesson 2 is designed to put the students into motion. Lesson 2, “Map-Reading Relay Race,” puts a physical (kinesthetic) learning style into action, combined with incorporating the visual (spatial) learning style and the social learning style. Students are grouped together into teams of three to five students, and they participate as a team in the map-reading relay race. Not only do they gain practice in honing their world map reading abilities, but they also learn to read and identify key information presented in the map itself as well as in the bar graphs along the bottom of the map.

In an effort to differ which learning styles are at the forefront of the various lessons, Lesson 3, “Economic Freedom Trivia,” utilizes the aural (auditory) and verbal (linguistic) learning styles, along with the social learning style. First, students read a handout that explains how economic freedom is measured. Then, the students work in a team as they carefully listen to statements being read aloud by the instructor, and determine if each is true or false.

Lesson 4, “The Rapid Response Quiz Show: Why is Economic Freedom So Vitally Important?” incorporates visual and aural/verbal learning styles, a bit of the physical learning style, and the social learning style. Before starting the game, students first read a handout that explains the difference between political freedom and economic freedom (how political institutions differ from economic institutions). The reading handout also demonstrates how a greater amount of economic freedom is associated with better outcomes when it comes to many measures of an individual’s well-being, standard of living, and life satisfaction, including higher income per capita, larger economic growth rates, higher income for the poorest of the poor in their country, lower poverty rates, a higher life expectancy, more political rights and civil liberties, greater gender equality (less gender inequality), and happier lives. After the students have read the handout, they split into teams, listen to each statement read aloud by the instructor, and try to correctly fill in the blank within each statement based on the information they read in the handout. Speed also comes into play in this game, as the first team to write down the correct answer to each fill-in-the-blank will receive double the points for that round.

Lesson 5, “The Rules of the Game: How Policies Influence Incentives,” utilizes visual and physical learning styles, along with the social learning style. Each team of students is given an envelope of “policy cards,” and they must determine the secondary effects of each policy. They are given glue sticks and sheets of paper (or poster board) that say “Expand Business Activity” and “Reduce Business Activity,” and they work together to determine what secondary effects would likely result from each policy.

Since even 5 min of physical activity has been shown to have positive learning outcomes for students (Maeda and Randall 2003), Lesson 6 (in addition to Lesson 2) has the students up and running. Lesson 6, “Economic Freedom Runners,” combines physical, social, and aural/verbal learning styles. Students split into teams and when it is their turn to run, they listen to the instructor state a policy or factor of the economy, and a student from each team will run to the other side of the room to grab the appropriate sign—either “Consistent” or “Inconsistent”—depending on whether the statement is consistent or inconsistent with economic freedom. Students have a chance to work both independently in this exercise and with their team if needed. Speed is a factor in Lesson 6 as well, as the first team member to make it back to their team with the correct answer earns double the points for that round. The teams also have a chance for a few bonus points if they can correctly identify which of the five main areas of the EFW index that the given concept falls within. (It would be a good idea for the students to have already played the Lesson 3 game before participating in Lesson 6, so they each have already read the handout explaining how economic freedom is measured, and what each of the five main areas of the EFW Index measures.)

While the other lessons incorporate a social (interpersonal) learning style, Lesson 7 is the one lesson that is designed to utilize the solitary (intrapersonal) learning style. Lesson 7, “Learning The Ropes of Research: EFW on the Web,” utilizes a visual learning style to teach students how to utilize the functions of the Fraser Institute’s Economic Freedom of the World website. Following the directions in the worksheet, students learn how to quickly and easily identify data points relating to Economic Freedom of the World. Students also learn how to access the entire EFW dataset so they can use it in the future research if this topic sparks their interest.

Lesson 8, “Economic Freedom Line,” utilizes visual, aural/verbal, social, and physical learning styles. Students are each assigned a country without knowing the real-world name of the country. They only know a couple of data points about their country, and must use the general relationships they have learned thus far about how economic freedom relates to those variables, to try to place themselves in a line from most-economically free to least-economically free. This lesson is meant to be a humbling experience for the students, as some might be thinking they know all there is to know about economic freedom at this point. But there are a few “surprise” countries placed in the deck of country cards, and hopefully such surprises will induce curiosity for the student to learn more about why/how it is that certain countries rank where they do in terms of economic freedom.

1.3 Conclusion

When designing the lessons to teach about various concepts, relationships, and facts surrounding economic freedom, I was careful to incorporate features that will be beneficial for students of different learning styles. I have found that students (and educators!) are not only more engaged during these games and activities, but that they also absorb, understand, and retain the information better. Many students have told me that it is much easier to remember a concept when one is not simply memorizing from a textbook. I have witnessed my Honors Principles of Microeconomics and Honors Principles of Macroeconomics students at Florida State University discover and apply concepts for themselves while participating in these econ activities. In fact, my students enjoy these activities so much that outside of class time, they come to the economic education center where I work in order to participate in more activities, and some students have even brought friends who are not enrolled in my course. Many of my FSU students have told me in person, via email, in their course evaluations, and even written on the back of their final exams that they really enjoyed the interactive activities, and that the economic freedom lessons helped them learn and truly grasp the economics concepts.

While sharing my interactive educational activities with Canadian educators in a workshop setting, I discovered that even those already familiar with the concepts still enjoy this method of learning by doing. It is a delight to see these instructors and other educators in the USA excited and eager to implement these tools in their own classrooms. These activities can be incorporated in classrooms at both the high school and college/university setting. While economics courses are the obvious choice for implementing these activities, teachers and professors in other areas of study such as history, civics, political science, social studies, and geography could also benefit from incorporating these Lessons in Economic Freedom into their classrooms when exploring differences across countries.

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Chapter 2

Video Games in Teaching Economics



David Youngberg

Abstract While economic education considers a large body of valuable classroom activities which demonstrate the efficacy of economic ideas, these activities mainly serve as illustrations and are constrained to the classroom. But video games hold even more pedagogical promise and to illustrate their potential, I present a working video game designed to reinforce students' understanding of comparative statics. The game plays as if it was built solely to entertain but rewards players who have a solid grasp of how to shift supply and demand curves. It thus incentivizes command of the subject matter without the pressure of grades. And because the game is not obviously homework, students who have trouble would be encouraged to stay engaged as they practice shifting curves. Though the game lacked many features a final version would include, student test results suggested that the video game improved student learning.

2.1 Introduction

The popular stereotype of economics is that of a dry, heartless, and highly mathematical discipline. Economists are “bean counters,” concerned only with efficiency in the worst sense of the word. Nothing could be further from the truth. Economic insights have diverse applications to not just understanding human behavior but also to get the most out of life. Part of the job of the economic educator is to correct this misperception and games are a powerful tool at the educator's disposal. By playing a role in some scenario, the learner puts herself in the shoes of a stranger and understands why that person acts as they do. Students do not merely see how theory works in practice, but discover they act in a way the theory predicts. The concept transforms from a chalkboard abstraction to a real thing that practically impacts

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lives and predicts behavior. At their very best, games help the student recognize economics as lively, humane, and relevant to their daily life.

As valuable as in-class games are, they have their limitations. Students and professors face computational limits concerning how different parties interact. Even elementary math performed in class takes time and can lead to simple errors which sabotage the instructive goals of the game. Such games are usually used to demonstrate ideas rather than practicing the concepts, a task typically left to conventional homework and studying.

Augmenting instructional techniques with electronic supplements in the form of video games addresses this disconnect. While they no means should replace conventional assignments, video games don't make mathematical errors and students find them much more engaging. By sparking interest in novices—where interest is scarcest—these games can transform apathy into curiosity which in turn can lead to greater enthusiasm for conventional instruction.

To illustrate the potential of game-based learning, I present a video game called *Merchant of the Seas*, I created with computer programmer Kyle Pittleman, and I implemented in my introductory economics class. The game attempts to draw a clear parallel to its main teaching goal—comparative statics—to its game play. The video game is described in detail along with how it was used in class. Preliminary results suggest the potential of this kind of instruction is well-justified.

2.2 Game Typology

Video games, broadly defined, fall into one of two categories. Commercial-off-the-shelf (COTS) games are what we typically think of as video games. They are the first-person shooter, strategy, role-playing, sports, puzzles, and fighting games which are sold for their entertainment value. Serious games (SG) form the other category. Also called game-based learning (GBL) games, they are designed to teach students and professionals particular skills (Aleksić and Ivanović 2017).

There is a fair amount of blurring between these types. Serious games, when properly executed, can be enjoyable enough to be played solely for their entertainment value. And COTS games could be used in an educational setting to teach certain skills. For example, students who played the popular puzzle game Tetris showed an improved spatial reasoning, though this improvement was limited to rotating shapes only found in Tetris (Sims and Mayer 2002).

While the Tetris finding puts the general pedagogical value of COTS games in doubt, these games increasingly include “toolkits” called modding software that allows users to create their own add-ons to the base game. This “middleware” drastically reduces technical barriers to creating custom games because much of the programming is handled by the computer (Castronova 2005). Lawson and Lawson (2010) used it to alter the popular role-playing game *Neverwinter Nights*, creating *Journey to Akerlof*, a game designed to teach concepts such as diminishing marginal utility and the profit-maximizing level of output. They also recruited three students

with no knowledge of programming to create a new learning module for the game. Though the students found the task difficult, they were able to complete the project in 7 weeks.

Regardless of the type of game used, using video games to teach economics would follow a pattern similar to in-class games educators often use to illustrate or reinforce various concepts. There are three types of simulations used in economic education: optimization, exploratory, and market simulations. Optimization refers to users attempting to maximize a given goal (profit, utility) under some constraint; exploratory refers to identifying the component parts of a simulated economy; and a market simulation involves participants interacting in a market context, resulting in a price (Porter et al. 2004).

Economists are well aware games encourage student engagement. Classroom games cover a wide range of topics including the connection between quality and cost, entry and exit, and profit-maximizing price, to name a few (Bernard and Schulze 2000; Cheung 2005; Eckalbar 2002). Games that use computers are similarly prolific. Kirche et al. (2011) support use of Applet programs for single-user simulations while noting several barriers to their use exist, such as time to the development and a necessary skill set. Many other attempts created numerical Excel-based simulations (Brown 2000; Saitone and Sexton 2009; Gilbert and Olad 2007, 2011). However, these simulations offer no inherently engaging context but rather a list of adaptive-learning questions (such as Myeconlab, Aplia, and Connect) or a series of inputs into a program that outputs some economic idea (e.g., a shift in a demand curve). Repeating fill-in-the-blank questions may improve understanding but it doesn't help the sizable portion of students who give up out of frustration before learning can take hold (Katz 1999). While there is value in practicing concepts outside of class, there is a role for practice which resembles a game more than it resembles conventional homework. There is a role for fun.

2.3 Game-Based Learning Potential

Activities and simulations are a vastly different method of instruction compared to lectures. Participants are actively engaged in lesson rather than passively learning. Depending on the activity, there may be more or less text to read, graphs to interpret, and words to listen to. Computer games allow for any number of activities to be digitized with audible, textual, and/or visual stimulations be enhanced or subdued. Moreover, computing technology is available for any faculty and students often possess not one but several computers, enabling them to explore the games outside of classroom time. Citing increasing student expectations for more technological integration in instruction, Goffe and Sosin (2005) argued for the value of integrating technology with instruction, specifically mentioning computer games.

But the most salient motivation for game-based instruction lies in the recognition of how diverse learners can be. Students vary in their past experiences, ability to handle stress, work and family commitments, language capacity, willingness to ask questions, and numerous other factors. Video games cannot address all of the