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Leading a Mock Trading Floor: Active-Based Learning in a Business Context

**Heather Knewton
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A master teaching approach was used during a session of introductory finance to provide high impact teaching practices for a large class of 190 freshman business students. To teach financial markets, an active-based learning activity was used, and the students participated in a simulated New York Stock Exchange trading floor. Using volunteers as market specialists, students traded fictional shares and submitted a portfolio assignment after the trading session. Active-based learning generated excitement toward meaningful student engagement about financial markets.

INTRODUCTION

Substantial prerequisite requirements present a challenge in financial education programs, because most finance coursework does not begin until the junior year. By the end of the sophomore year, students majoring in business have typically taken one semester of business law, two semesters of accounting, one semester of management, and one semester of marketing. The lack of early exposure to finance topics threatens the retention of finance majors and becomes an obstacle toward the recruitment of students from related business disciplines, because switching majors can result in loss of time toward degree completion. The objective of this work is to describe an innovative teaching exercise that increased student engagement in finance business education and to enumerate ways the teaching exercise can be adapted to a variety of other teaching situations. The ability to attract and retain freshmen finance majors is a significant factor for using engaging activities to excite students about finance early in their business programs.

LITERATURE REVIEW

Critical to the retention of business students is the ability of instructors to engage students with course content in meaningful ways. Engaging students in meaningful learning objectives is one of the seven principles of good undergraduate education (Chickering & Gamson, 1999). Careful instructional design is important to ensure learning outcomes are mastered. Fink (2003) illustrated that the learning process is cyclic in nature and involves three key components: learning goals, teaching/learning activities, and feedback/assessment. Effective learning relies on learning objectives being conveyed to students through well-designed teaching and learning activities that are purposefully aligned with timely and formative feedback and summative assessments.

To ensure students have an opportunity to demonstrate their competency with specific learning goals, researchers have recommended a variety of active learning strategies. For example, Bonwell (1996) found

enhanced lectures that intersperse mini-lectures with active-based learning strategies were beneficial for students by increasing motivation and the acquisition of higher-order thinking skills. Active-based learning can assume a variety of guises running the gamut from class discussion to more active forms like “drama, role playing and simulation,” according to Bonwell and Eison (1991).

METHODOLOGY

During the three semesters between January 2012 and April 2013, a master teaching approach was used for lectures in an introduction to business course at a large state university in the Midwest. It was led by professors from various business disciplines in order to educate, engage and excite students. The class was a required three-credit course for all business majors. To operationalize the team-taught format, class enrollment was increased from the 40 students to 190 students. Two lead faculty members coordinated the master teachers’ schedules and led the companion discussion sections. Master teachers lectured twice per week for 50 minutes. Once per week, students attended a discussion session in a group of 25 students. The purpose of the introductory business course was to engage students in the practice of business to expose them to the various disciplines before the start of business studies in the sophomore year. Additionally, the course introduced students to general business skills, such as communications, teaming, professionalism, and ethics.

Instructional Setting

In the introduction to business course, there was one 50-minute class on financial markets. The class was conducted in a large lecture hall. Large classes created additional challenges for instructors, including the feeling of student anonymity. Learning names is reportedly a good way to build rapport with students (Astin, 1997). For a single lecture, there is little benefit in learning all student names. To combat the problem of anonymity, the professor arrived early to the classroom by the professor to learn about 10 student names at various places throughout the classroom. This built a positive rapport with students and engaged all of the students to guess how many names the professor learned.

Class Design

An instructional designer from a faculty-learning center was consulted in preparation for the class session. Students in investments classes typically learn about the mechanics of the New York Stock Exchange (NYSE). However, most business students outside the finance major will not subsequently elect an investments class, so the simulation of a trading floor through this activity introduced students to an activity that they would not normally experience in their programs. Creation of a mock exchange excited freshman about finance.

The design principles of Fink (2003) linking learning objectives, classroom activities, and student assessment were used throughout. The learning objective was to develop familiarity with financial markets. To facilitate the concept, students were required to read a textbook chapter and take a reading quiz about financial markets prior to the class meeting. To encourage students to be active participants in their learning and to provide accountability for class attendance, an additional pre-reading assignment was assigned to familiarize students with the NYSE trading floor. Students needed to familiarize themselves with the NYSE itself, by viewing an online videos and responding the questions submitted in the class session (Appendix 1). The activity to meet the learning objective was to implement a mock exchange. The completion of a subsequent portfolio assignment to assess the learning activity was required.

NYSE Trading Floor Simulation

For the NYSE trading floor, volunteer students served as market specialists. A natural outlet to solicit volunteers was the student members of the Financial Management Association. Volunteers were also recruited from other classes taught by the professor. To coordinate the activity, a planning meeting was conducted with the volunteers to communicate their roles and responsibilities. To convey portfolio mechanics, a sample portfolio was provided to student teams with computations of updated portfolio

values illustrated. An identical starting portfolio for all students participating in the activity that included 10 equities based on suggested firms from the volunteers was created.

The trading simulation activity involved volunteers placing students into portfolio trading teams of five members as the students entered the classroom. Forming teams reduced the number of solution keys required for grading. The trading posts were located at the front of the classroom. Volunteers assisted in class as co-leaders of the trading activity. The students received written instructions (Appendix 2) as they entered the classroom, including a sample portfolio (Appendix 3) and their team's starting portfolio (Appendix 4). The activity was outlined in a brief discussion during the first five minutes of the class period. Time spent on this step was very important. Giving students adequate background and explanation facilitated efficient trading and created a richer learning experience.

To begin the trading session, a video was played which showed an opening bell ringing on the NYSE. Once trading opened, students decided in consultation with their portfolio teammates which stocks to buy or sell from the available equities. Each student executed one trade per team, for a total of five trades across the team. The students recorded their trades on index cards and went to the market specialist (volunteer) to trade. The market specialist ensured the cards were completed properly and placed initials on the index card indicating that the trades have been executed. The previous day's close price served as the trading price to simplify the exercise. It is important to consider the ratio of volunteers to students toward efficiently conducting the mock exchange. For a class of 190 students, between 25 and 30 volunteers were optimal for the activity to run smoothly. With 10 volunteers serving at trading posts, another 15 to 20 volunteers circulated throughout the room to guide students through the activity. To motivate students to volunteer, they were offered a nominal amount of extra credit or a note to the student service organization of their choice recognizing their volunteerism.

Upon completion of trading, each portfolio team met to discuss net trading positions by team. This step was necessary to ensure agreement in the team trades for individuals to prepare the follow-up portfolio assignment (Appendix 4) due one week subsequent to the trading activity. Student volunteers sat with the teams throughout the room to answer team questions about the activity and assignment, and to model professionalism. The trading session lasted 15 minutes, after which the 50-minute class was concluded with a 30-minute lecture (Appendix 5) on securities markets. The students' subsequent assignment involved finding closing stock prices for their stocks and calculating the closing portfolio value. This allowed the linking of the learning activity and assessment to provide more meaning to the exercise. The portfolio trades were calculated, and the net trades and closing prices were posted, with an invitation to attend office hours for assistance. Typically, about 15 students visited to verify their net trading positions (others may have verified the information without needing to meet with the professor, since the net trading positions by team were posted on the professor's office door).

STUDENT RESPONSE & LESSONS LEARNED

Student response strengthened each semester. During the first semester the biggest challenge was processing 190 students through the trading floor. In retrospect, the trading floor was likely opened too soon. Fink (2003) recommended that faculty fully understand situational factors, such as student readiness, their prior knowledge, and the classroom space itself. Although conversant with an understanding of these situational factors, later it was realized that the ability of freshmen students to follow verbal and written instructions was not as developed as for upperclassmen. In hindsight, the trading occurred more rapidly than initially expected. Recognizing more time was available for instructions allowed for a better preliminary discussion of the activity in subsequent semesters.

Freshmen are different than the juniors. Students in their first year are still acquiring skills taken for granted in upper division students, such as punctuality, respectful disengagement from social media, and confident questioning of faculty and peers. The growth of these students before they ultimately arrive in a junior finance class, demonstrated the deep respect required for professors of business and general education that help to prepare these students for their later studies.

Fink (2003) further recommended that scaffolding be provided to students to allow the active achievement of the learning objectives. The original video assignment that introduced students to a trading floor proved insufficient scaffolding to fully achieve its purpose of facilitating learning. Although the mock training floor was initially intended as a surprise, during the second and third sessions, the instructions for the activity were given in advance to the students (Appendices 2 – 4). Additional time was taken to explain the trading process and the portfolio assignment before opening the trading floor.

The lead instructors remarked that students really enjoyed the activity and felt the trading floor was valuable toward understanding financial markets. Student volunteers were equally excited about involvement in an instructional setting that mentors freshman business majors. The portfolio assignments were completed (largely) very well and reflected that learning about the mechanics of changes in portfolio positions was meaningful.

POSSIBLE EXTENSIONS

The mock exchange activity can be modified to create variations and accommodate additional instructional settings. The mock exchange can work with smaller classes to achieve similar learning objectives. An idea for volunteers is to use a handful of students within the class to serve as market makers and the rest of the class as traders. Depth can be added by amending the homework assignment to include a discussion section. For example, topics to deepen the material could include a discussion of price formation, the history of equity exchanges, or the role of equity markets in the financial system. If the technology is available to students and instructors, it is possible to use real-time prices instead of the “cold” prices used in this simpler experiment. Although our activity focused on the NYSE, the activity can be modified to trade equities for any other exchanges, making the activity meaningful to international classrooms. Additional complexity, as described in the variations above, can be added to adapt the activity to the level of university education (juniors, seniors, Master of Business Administration, or Master in Finance programs).

CONCLUSION

A mock trading floor was created to excite and engage student in finance education for an introductory business class of 190 freshmen students. Volunteers served as market makers and assistants in the trading activity. The activity was structured to engage students with a simulation of the mechanics of an equity-trading floor. Using the principles of good design (Fink, 2003), the learning objectives were considering in developing the active-based learning activity and subsequent short lecture. To complete the learning cycle, an assignment to update the value of the traded portfolio was assessed. Modifications for smaller classes, enhancement of the complexity for upperclassmen and graduate students, and the adaptation of the exercise to international contexts at the university level were illustrated as possible extensions.

High impact teaching strategies are risky but can provide meaningful enhanced learning opportunities for students. Active-based learning through role playing offers faculty an additional instructional technique, as well as opportunities for enhanced student engagement and retention of content (Bonwell & Eison, 1991). The coordination involved in high impact teaching presents logistical challenges and requires more advanced planning than the traditional lecture format. Fink (2003) provided a useful framework for designing effective, active-based learning approaches to enhance teaching effectiveness. The excitement of students motivated by business and finance in particular was worth the risk and the planning. Active-based learning offers deeper learning experiences. The stage was set to excite students about the finance component of the introduction to business course toward a better understand the importance of finance in the business curriculum.

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APPENDIX 1

INTRODUCTION TO BUSINESS:

PRE-READING/WRITING ASSIGNMENT FOR FINANCIAL MARKETS LECTURE

We will be discussing the role of capital markets during our first of two lectures in finance. Please read the book chapter on financial markets and take the Blackboard quiz before class. Then view the two following YouTube videos and answer the following questions for submission at the start of class. Your answers should be type written with your full name and discussion section provided at the top right.

<http://www.youtube.com/watch?v=TPUDPhpCecA>
<http://www.youtube.com/watch?v=a55G2kt93IU>

- | | |
|---|--------------------------------|
| 1. What equity exchange do the videos cover? | <u>Answers:</u>
<i>NYSE</i> |
| 2. Is Teddy Weisberg a specialist or a broker? | <i>Broker</i> |
| 3. Who is the dog? | <i>Client</i> |
| 4. What are the exchange hours for the exchange featured in this video? | <i>9:30 – 4pm</i> |
| 5. What color are the floor jackets worn on this exchange? | <i>Blue or green</i> |

We will be simulating an equity trading floor and each of you will serve as a floor broker trading stocks (Financial Management Association volunteers will serve as post specialists). You will be issued a 3x5 card upon timely entry into the classroom which identifies your portfolio team and your team will be given a starting portfolio of securities. Each student will trade (purchase or sell) and work with their team to update a portfolio based on the 5 trades your team executes. Here are the firms you will be able to trade share in:

<u>Firm</u>	<u>Ticker</u>
Amazon	AMZN
American Express	AXP
Apple	AAPL
Exxon Mobil	XOM
Google	GOOG
Lowe's	LOW
Deere	DE
Netflix	NFLX
Priceline	PCLN
Whirlpool	WHR

APPENDIX 2

INTRODUCTION TO BUSINESS: NYSE SIMULATION CLASSROOM INSTRUCTIONS

We will be simulating an equity trading floor and each of you will serve as a floor broker trading stocks (Financial Management Association volunteers will serve as market specialists). You have been given a 3x5 card which identifies your portfolio team and a starting portfolio of securities.

1. Decide which stock you will each buy or sell and the number of shares (multiples of 100 are best). Each student will execute one trade (a buy or a sell trade). Please trade in a different stock than your other teammates. Communicate briefly as a team to ensure unique trades. Make sure not to sell more shares than you own.
2. Fill out your order card with your name, circle buy/sell, put down the # of shares (100 share increments please) and the firm's ticker. After the opening bell rings, please come to the trading floor. Give your order to the appropriate specialist and he/she will sign your order to indicate execution. All orders are being filled at the price indicated on your spreadsheet (today's open price).
3. Reconvene with your team and fill in your team portfolio changes by entering the # of shares bought/sold in the respective columns and updated the Shares (after trades) column. Each student should make the team's changes to their spreadsheet since this is an individual assignment for submission in your discussion section next week. (Of course, each team portfolio should have the exact same values when submitted, since these are team trades).
4. All trading must be completed by the closing bell.
5. After the (real) markets close today (4pm), you will be able to complete the portfolio updating the close position column. Go to finance.yahoo.com and look up the ticker. Scroll to historical prices and select the price for the close on April 4, 2012. Enter these prices into your spreadsheet and update both the cash position (how much did you pay/get for your trades?) and the close positions. Subtotal to get your new portfolio value.
6. Here are the firms you will be able to trade share in:

<u>Firm</u>	<u>Ticker</u>
Amazon	AMZN
American Express	AXP
Apple	AAPL
Exxon Mobil	XOM
Google	GOOG
Lowe's	LOW
Deere	DE
Netflix	NFLX
Priceline	PCLN
Whirlpool	WHR

APPENDIX 3

**EXAMPLE PORTFOLIO FOR MARCH 26, 2012 OPEN AND CLOSE PRICES
(FROM YAHOO FINANCE HISTORICAL PRICES)**

<u>Firm</u>	<u>Ticker</u>	<u>Exchange</u>	<u>Shares (open)</u>	<u>Price (open)</u>	<u>Open Position (Shares * Price)</u>	<u># Shares Bought</u>	<u># Shares Sold</u>	<u>Shares (after trades)</u>
Amazon	AMZN	NASDAQ	500	196.48	98,240.00			500
American Express	AXP	NYSE	1,700	57.75	98,175.00			1,700
Apple	AAPL	NASDAQ	200	599.79	119,958.00	100		300
Exxon Mobil	XOM	NYSE	1,200	86.18	103,416.00		500	700
Google	GOOG	NASDAQ	150	645.00	96,750.00			150
Lowe's	LOW	NYSE	3,000	30.97	92,910.00			3,000
Deere	DE	NYSE	1,200	82.32	98,784.00		1,000	200
Netflix	NFLX	NASDAQ	800	121.59	97,272.00	300		1,100
Priceline	PCLN	NASDAQ	150	722.01	108,301.50			150
Whirlpool	WHR	NYSE	1,500	77.89	116,835.00		500	1,000
Cash	N/A	N/A	N/A	N/A	100,000.00	N/A	N/A	N/A
Total					1,030,641.50			
<u>Firm</u>	<u>Ticker</u>	<u>Exchange</u>	<u>Trading Cost for Purchases (# Shares Bought * Price (open))</u>	<u>Trading Cost for Sales (# Shares Sold * Price (open))</u>	<u>Cash Cost (Total Trading Cost for Purchases - Total Trading Costs for Sales)</u>	<u>Price (close)</u>	<u>Close Position (Shares * Price)</u>	
Amazon	AMZN	NASDAQ	0.00	0.00	N/A	202.87	101,435.00	
American Express	AXP	NYSE	0.00	0.00	N/A	58.66	99,722.00	
Apple	AAPL	NASDAQ	59,979.00	0.00	N/A	606.98	182,094.00	
Exxon Mobil	XOM	NYSE	0.00	43,090.00	N/A	87.03	60,921.00	
Google	GOOG	NASDAQ	0.00	0.00	N/A	649.33	97,399.50	
Lowe's	LOW	NYSE	0.00	0.00	N/A	311.18	933,540.00	
Deere	DE	NYSE	0.00	82,320.00	N/A	82.78	16,556.00	
Netflix	NFLX	NASDAQ	36,477.00	0.00	N/A	121.99	134,189.00	
Priceline	PCLN	NASDAQ	0.00	0.00	N/A	735.40	110,310.00	
Whirlpool	WHR	NYSE	0.00	38,945.00	N/A	78.02	78,020.00	
Cash	N/A	N/A	N/A	N/A	-67,899.00	N/A	167,899.00	
Total			96,456.00	164,355.00			1,982,085.50	

APPENDIX 4

**GROUP TRADING PORTFOLIO FOR APRIL 4, 2012 OPEN AND CLOSE PRICES
(FROM YAHOO FINANCE HISTORICAL PRICES)**

Team _____

Student Name: _____

<u>Firm</u>	<u>Ticker</u>	<u>Exchange</u>	<u>Shares (open)</u>	<u>Price (open)</u>	<u>Open Position (Shares * Price)</u>	<u># Shares Bought</u>	<u># Shares Sold</u>	<u>Shares (after trades)</u>
Amazon	AMZN	NASDAQ	500	196.95	98,475.00			
American Express	AXP	NYSE	1,700	57.98	98,566.00			
Apple	AAPL	NASDAQ	150	624.71	93,706.50			
Exxon Mobil	XOM	NYSE	1,200	85.35	102,420.00			
Google	GOOG	NASDAQ	150	638.45	95,767.50			
Lowe's	LOW	NYSE	3,300	30.87	101,871.00			
Deere	DE	NYSE	1,200	80.92	97,104.00			
Netflix	NFLX	NASDAQ	900	111.63	100,467.00			
Priceline	PCLN	NASDAQ	150	737.55	110,632.50			
Whirlpool	WHR	NYSE	1,400	73.50	102,900.00			
Cash	N/A	N/A	N/A	N/A	100,000.00	N/A	N/A	N/A
Total					<u>1,101,909.50</u>			

<u>Firm</u>	<u>Ticker</u>	<u>Exchange</u>	<u>Trading Cost for Purchases (# Shares Bought * Price (open))</u>	<u>Trading Cost for Sales (# Shares Sold * Price (open))</u>	<u>Cash Cost (Total Trading Cost for Purchases - Total Trading Costs for Sales)</u>	<u>Price (close)</u>	<u>Close Position (Shares * Price)</u>
Amazon	AMZN	NASDAQ			N/A		
American Express	AXP	NYSE			N/A		
Apple	AAPL	NASDAQ			N/A		
Exxon Mobil	XOM	NYSE			N/A		
Google	GOOG	NASDAQ			N/A		
Lowe's	LOW	NYSE			N/A		
Deere	DE	NYSE			N/A		
Netflix	NFLX	NASDAQ			N/A		
Priceline	PCLN	NASDAQ			N/A		
Whirlpool	WHR	NYSE			N/A		
Cash	N/A	N/A	N/A	N/A		N/A	
Total							

This assignment requires you update your portfolio with shares transacted in, close prices and updated portfolio values and must be submitted for grading to your discussion section the week of April 9-13, 2012. Professor Z's office hours are Tuesdays/Thursdays, 11:00 am and 12:30pm and 2:00 - 3:00pm. She will post the net shares traded by team (ex. A, B, C...) and the daily close prices for the stocks for April 4, 2012, on her office door (*Location*), in case you would like to check your work prior to submission.

APPENDIX 5 SECURITIES MARKETS LECTURE

NYSE/NASDAQ - Which market is bigger?

- Number of listed stocks - NASDAQ: 2,800 vs. NYSE: 2,300
- Volume of shares traded - NASDAQ: 1trillion shares/day vs. NYSE 2 billion shares day
- Market capitalization – Dollar value of listed firms - NYSE: \$14 trillion vs. NASDAQ: \$4.5 trillion

Why do markets exist?

- Supports the movement of money between providers and demanders of the capital
- Prices of securities reflect the interplay between supply and demand of capital

Types of securities:

- Bonds –contracts that require repayment/loans
- Stocks – residual claims, reflect ownership

Risk/Return – go hand in hand

- In order to be exposed to the possibility of future returns on their capital, investors must be willing to bear the risk of loss.

Equity Markets:

- Primary Market (IPO/SEO) – raises money for firm
 - Ex: Facebook is expected to IPO in May at a valuation of up to \$100 Billion
- Secondary Market (NYSE, NASDAQ) - In the secondary market investors buy and sell shares with other investors.
 - Our trading floor mimicked aspects to the NYSE.

Debt Markets:

- Types: Corporate, mortgage and government
- \$50 trillion in money, stocks and bonds
 - Bonds - \$25 trillion
 - Stocks make up about \$20 trillion
 - Money \$5 trillion

How is the market doing? Stock Market Indexes

- Domestic
- International

US Indexes:

- DJIA
- S&P 500
- Wilshire 5000

International Indices:

- DAX (Germany)
- FTSE (United Kingdom)
- Hang Seng (Hong Kong)
- Nikkei (Japan)
- SSE Composite (Shanghai)

Market Integrity:

Why regulate/self-regulate?

- To give investors' confidence in the pricing mechanism, "fair game."

Regulation by:

- Governments (SEC, states, etc.)
- Self-Regulatory Organizations (FASB, FINRA, etc.)

Significant regulatory events:

- SEC 1933/1934
- Sarbanes/Oxley Act of 2002
- Dodd-Frank Act of 2010

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