

Pedagogical Review of Professional Options Platforms in the Classroom

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Abstract

Using professional trading software leads to better understanding of options than traditional lecture or simulated trading platforms. Pedagogical studies consistently demonstrate the advantages of experiential learning with regards to heightened student involvement, long-term retention and better preparation for careers. Simulated options trading platforms are popular supplemental learning tools for course in financial derivatives due to the ease of use and the ability to monitor student performances. The inclusion of professional trading software allows students better clarity for how the options markets work allowing for deeper understanding and longer-term retention.

An anonymous survey of 32 questions of 60 students and alumni from Illinois Institute of Technology was conducted. The questions revolved around demographic information, trading experiences, classroom experience and student experience of trading platforms including professional platforms of Thinkorswim, OptionsHouse or the simulated platform of StockTrack. The study finds students using a trading platform to only a traditional lecture have better understanding of the overall market, the role of risk management in trading, spread strategies, the language of traders, order types and finding a job post-graduation. The results also find the inclusion of a professional trading platform such as Thinkorswim as opposed to the simulated platform enhances even further learning of the financial markets.

Key words: Financial Education, Options Trading Platform, Thinkorswim, StockTrack

Introduction:

The financial markets industry offers many opportunities for both undergraduate and graduate students alike to gain hands-on experiences. Many software firms in the industry offer competitions such as TD Ameritrade and Trading Technologies. Exchanges also host unique trading competitions such as the Chicago Mercantile Exchange and Chicago Board of Trading. The Federal Reserve Bank also offers students opportunities in form of a competition and school days at the Fed. Finally, certificate bodies also offer competitions such as the case study of a risk management case from the Professional Risk Managers (PRMIA) and the Chartered Financial Analyst research challenge (CFA).

In each of these competitions students have the ability to work with professional software to understand how those in the industry do their job and compete in the market place (Dolan, Stevens 2010).

The educational benefits of such experiences have been documented throughout pedagogical studies. The emphasis of these types of studies has been to determine the benefit of experiential learning to traditional in-class learning (Charlton, Earl, Stevens 2015). Research also demonstrates experiential learning is attractive to future employers allowing for students to be better prepared for their future careers (Burkhalter, Schaer 1985). In addition to the technical skills of security selection and analysis students also are able to develop their softs skills such as communication skills and presentation skills (Carter, Thomas 1986).

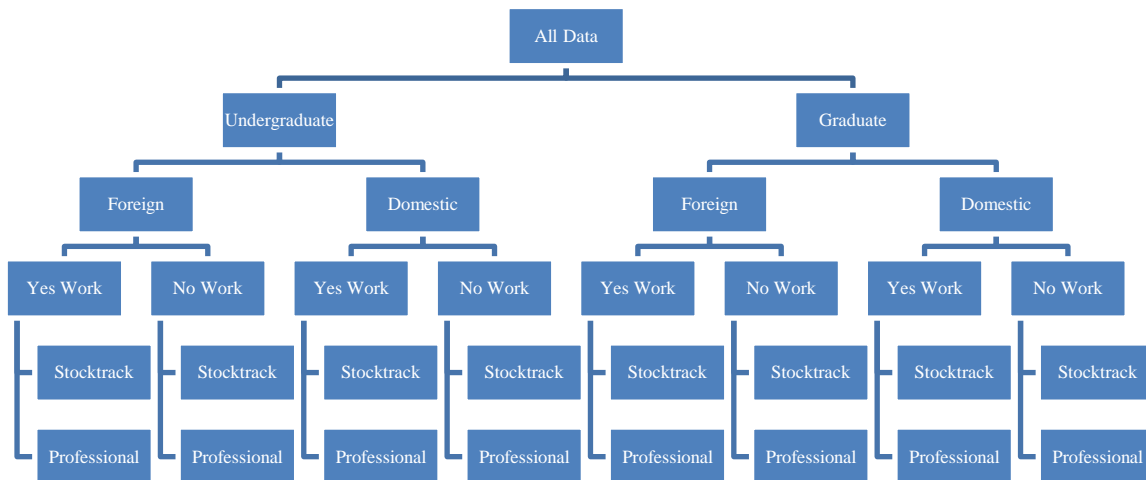
Incorporating hands-on projects within the classroom poses a pedagogical and curriculum development challenge. The inclusion of such programs should focus on learning as well as teaching (Barr, Tagg 1995). The shift in curriculum must support learning from the students as well as enhancing faculty development (Buckley 2002). The ability of the faculty member to integrate technology and real-world experiences is imperative to have a positive enhancement from utilizing trading technology in the classroom (Lester, Cole 2009).

Data Description:

Survey data was collected in April of 2013 from students and alumni of Illinois Institute of Technology. Students were informed of the survey during their options course at both the undergraduate and graduate levels. Alumni from Illinois Institute of Technology were informed via LinkedIn. The data was collected anonymously using Google documents. Each respondent has a unique identifier in terms of their timestamp of when they completed the survey. Surveys were completed starting April 9, 2013 through April 25, 2013. There were a total of 60 respondents.

The survey consisted of demographical information, as well as data ranking contributions of the three pedagogical methods of learning from reading the text book, in-class discussion and utilizing simulated trading software. The demographical information included whether the student was an undergraduate student or graduate student, whether the student was foreign or domestic, whether the student had work experience or not and whether the student utilized a professional simulated trading platform or a classroom based simulated trading platform. Figure 1 represents the flow chart of the demographical data.

Figure 1: Diagram of Demographical Data



Of the 60 respondents, 9 students were undergraduates, 3 students left the response blank and 48 were graduate students. 20 of the respondents were domestic students, 3 students left the response blank and 37 students were international students. 36 students said they had less than 2 years’ work experience, which we consider to be zero work experience.

24 students claimed to have more than 2 years’ work experience which we consider to be yes, the student has work experience. 17 of the students said they had not used a platform in the classroom. 18 of the students said they used a professional trading platform in the classroom. 25 of the students said they used stock track in the classroom. This data is seen in table 1: Demographical Data of All Respondents. Respondents which did not fill out whether they were an undergraduate or graduate student, international or domestic student or did not utilize a trading platform in class were eliminated from the data, leaving 41 respondents. Of the 41 students who completed the demographical data and used a software platform in their classroom, 5 were undergraduate students and 36 were graduate students. This data is seen in table 2: Demographical Data of Completed Respondents.

Table 1: Demographical Data of All Respondents

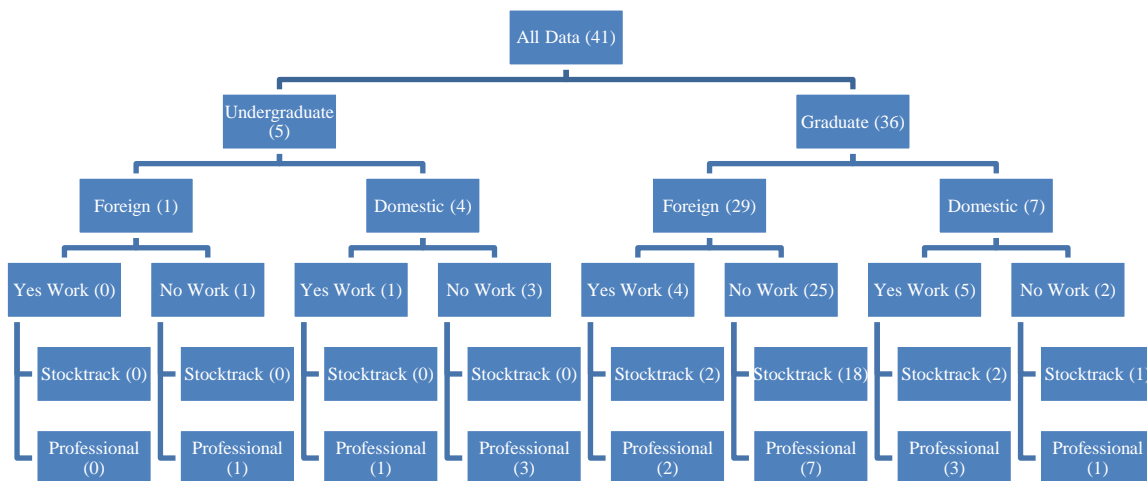
Undergraduates Students: 9	Graduate Students: 48	Blank: 3
Domestic Students: 20	International Students: 37	Blank: 3
Work Experience: 36	No Work Experience: 24	
Professional Software: 18	Stocktrack: 25	No Software: 17

Table 2: Demographical Data of Completed Respondents

Undergraduate Students: 5	Graduate Students: 36
Domestic Students: 11	International Students: 30
Work Experience: 10	No Work Experience: 31
Professional Software: 18	Stocktrack: 23

Evaluating the data we can create various categories such as domestic graduate student with no work experience who used a professional software platform in class. Breaking down the data by the four categories created a table 16 different categories. These are seen in Figure 2: Diagram of Demographical Data of Full Responses. The category with the largest number was international graduate student with no work experience who used Stocktrack in class (18). The second largest category was international graduate with no work experience who used a professional software platform in class (7). 2 categories had 3 responses: domestic graduate students with work experience who used a professional software platform and domestic undergraduate students with no work experience who used a professional software platform. The rest of the categories had 0, 1 or 2 responses within each category. Again, these response counts can be seen in Figure 2: Diagram of Demographical Data of Full Responses.

Figure 2: Diagram of Demographical Data of Full Responses



Factor Analysis:

Survey participants were required to rank several factors on a five point scale with 5 being the highest and 1 being the lowest. The factors included: how much the text book contributed to understanding, how much the classroom discussion contributed to understanding and how much the simulated platform contributed to understanding. Each of these items were asked about various topics such as understanding the options market, understanding of risk management, understanding order types, understanding the language of traders, understanding of pricing options and finding a job after graduation. The factors are listed in table 3: Factors for Ranking.

Table 3: Factors for Ranking

Topic	Reading the Textbook	Classroom Discussion	Trading Platform
Understanding the Options Market	3.65	3.24	3.41
Understanding Risk Management	3.39	3.05	3.28
Understanding Order Types	3.18	3.24	3.38
Understanding the Language of Traders	2.98	2.93	2.87
Understanding of Pricing Options	4.05	3.63	2.95
Finding a Job After Graduation	3.03	3.18	2.82

Table 3: Factors for Ranking, represents not only the factors for ranking but the average of all the rankings in each of 16 the categories which are demonstrated in both Figures 1 and 2. In each of the 6 factors, reading the textbook had a larger contribution to understanding than the simulated options platform. Reading the textbook had a higher contribution in all 4 of the factors: understanding the options market, understanding risk management, understanding the language of traders and understanding the pricing of options. Classroom discussion contributed to learning more for understanding order types and finding a job after graduation.

The data was further analyzed by counting the various rankings. For example, for the textbook contributing to the understanding of options had a count of 1 of an individual ranking the textbook contributing to the understanding. On the other hand, there were 8 students who ranked the textbook as a 5 for contributing to their understanding of options. Table 4: Contributions to Understanding Options, represents the breakdown contributions to understanding options.

Table 4: Contributions to Understanding Options

Ranking	Reading the Textbook	Classroom Discussion	Trading Platform
1	1	6	5
2	2	3	1
3	15	13	14
4	14	13	11
5	8	6	8

The majority of the respondents placed contributions on all three teaching methodologies as either a 3 or 4. Very few students placed a low contribution to any of the methodologies. More students ranked the methodologies highly than lowly.

Table 5: Contributions to Risk Management, represents the count of the rankings for the contributions to understanding risk management. Risk management is often conducted through the use of trading futures and forwards as well as options financial derivative products. The majority of the students ranked each of the three teaching methodologies as either a 3 or 4.

Table 5: Contributions to Risk Management

Ranking	Reading the Textbook	Classroom Discussion	Trading Platform
1	1	6	6
2	8	8	5
3	16	11	9
4	6	10	12
5	10	6	8

Table 6: Contributions to Order Types, represents the count of the rankings for the contributions to understanding order types. Financial derivatives can be executed with several different types of order types. The majority of the students ranked each of the three teaching methodologies as either a 3 or 4.

Table 6: Contributions to Order Types

Ranking	Reading the Textbook	Classroom Discussion	Trading Platform
1	3	5	4
2	7	4	3
3	15	16	14
4	8	8	10
5	6	8	8

Table 7: Contributions to Language of Traders, represents the count of the rankings for the contributions to understanding the language of traders. The financial markets has its own vocabulary. The majority of the students ranked each of the three teaching methodologies as a 3.

Table 7: Contributions to Language of Traders

Ranking	Reading the Textbook	Classroom Discussion	Trading Platform
1	7	8	9
2	8	8	5
3	13	10	13
4	5	7	6
5	8	7	6

Table 8: Contributions to Options Pricing, represents the count of the rankings for the contributions to understanding the pricing of options. Pricing options can often have different implications from theoretical to practical. The majority of the students ranked each of the three teaching methodologies as either a 3 or 4.

Table 8: Options Pricing

Ranking	Reading the Textbook	Classroom Discussion	Trading Platform
1	0	3	6
2	3	2	9
3	8	13	11
4	14	12	7
5	16	11	6

Table 9: Contributions to Finding a Job, represents the count of the rankings for the contributions to finding a job after graduation. Finding a job after graduation requires the student to thoroughly understand derivatives during their interviews. The majority of the students ranked each of the three teaching methodologies as either a 3 or 4.

Table 9: Finding a Job

Ranking	Reading the Textbook	Classroom Discussion	Trading Platform
1	8	6	9
2	3	5	6
3	13	11	11
4	10	10	7
5	5	7	5

Hypothesis:

This paper evaluates four different hypotheses evaluating the various methods for learning about options including reading from the textbook, classroom discussion and the use of simulated trading platform. In addition, this paper seeks to understand which of the teaching methods had the largest impact on helping the student achieve gainful employment in the financial markets.

The data is in a five point Likert scales, indicating the data is discrete rather than continuous. There are a handful of methodologies for analyzing the data including two sample t-test and the Mann-Whitney test. The two sample t-test is fairly robust to handle the non-normality of the Likert scale. The Mann-Whitney doesn't have significant gains over the t-test (deWinter, Dodou 2010).

Hypothesis 1: Simulated trading platforms provide better students' understanding than reading through the textbook.

**Table 10: t-Test: Paired Two Sample Means
Reading the Textbook v. Trading Platform for Understanding Options**

	Reading the Textbook	Trading Platform
Mean	3.6315	3.4736
Variance	0.9416	1.3911
Observations	38	38
Pearson Correlation	-0.0323	
Degrees of Freedom	37	
t Stat	0.6273	
P(T<=t) one-tail	0.2617	
t Critical one-tail	1.6870	
P(T=t) two-tail	0.5342	
t Critical two-tail	2.0261	

The difference between the two means is 0.1579. The t-stat is 0.6273. The one-tail test is 0.2617. There is not enough evidence to reject the hypothesis. Reading the text book generated better understanding than the inclusion of the trading platform.

Hypothesis 2: Simulated trading platforms provide better students' understanding than in-class room discussions.

**Table 11: t-Test: Paired Two Sample Means
In-Class Room Discussion v. Trading Platform for Understanding Options**

	Classroom Discussion	Trading Platform
Mean	3.2894	3.4736
Variance	1.5085	1.3911
Observations	38	38
Pearson Correlation	#N/A	
Degrees of Freedom	37	
t Stat	-0.8394	
P(T<=t) one-tail	0.2033	
t Critical one-tail	1.6871	
P(T=t) two-tail	0.4066	
t Critical two-tail	2.0261	

The difference between the two means is -0.1842. The t-stat is -0.8394. There is not enough evidence to reject the hypothesis. In-Class Room Discussion generated worse understanding than the inclusion of the trading platform.

Hypothesis 3: Simulated trading platforms provide better preparation for students seeking a job as compared with reading a textbook.

**Table 12: t-Test: Paired Two Sample Means
Reading the Textbook v. Trading Platform for Getting a Job**

	Reading the Textbook	Trading Platform
Mean	3.1111	2.9167
Variance	1.5873	1.7357
Observations	36	36
Pearson Correlation	0.2467	
Degrees of Freedom	35	
t Stat	0.7372	
P(T<=t) one-tail	0.2329	
t Critical one-tail	1.6895	
P(T=t) two-tail	0.4658	
t Critical two-tail	2.030	

The difference between the two means is 0.1944. The t-stat is 0.7372. The one-tail test is 0.2329. There is not enough evidence to reject the hypothesis. Reading the text book helped finding a job better than the inclusion of the trading platform.

Hypothesis 4: Simulated trading platforms provide better preparation for students seeking a job as compared with in-class room discussions.

**Table 13: t-Test: Paired Two Sample Means
In-Class Room Discussion v. Trading Platform for Getting a Job**

	Classroom Discussion	Trading Platform
Mean	3.2778	2.9167
Variance	1.5778	1.7357
Observations	36	36
Pearson Correlation	0.4114	
Degrees of Freedom	35	
t Stat	1.551	
P(T<=t) one-tail	0.0649	
t Critical one-tail	1.6895	
P(T=t) two-tail	0.1299	
t Critical two-tail	2.0301	

The difference between the two means is 0.3611. The t-stat is 1.551. The one-tail test is 0.0649. There is a difference between the two means. In-Class Room Discussion helped finding a job better than the inclusion of the trading platform.

Hypothesis 5: Professors who made the software system a requirement of the class had better understanding of options. 20 respondents indicated the software system was not a requirement whereas 30 indicated it was a requirement. Table 14: Impact of Requirement demonstrates the contributions of reading the textbook, classroom discussion and the trading platform broken into whether the simulated platform was required or not by the instructor of the class.

Table 14: Impact of Requirement

Topic	Reading the Textbook	Classroom Discussion	Trading Platform
Simulated Platform Not Required	3.30	3.30	3.10
Simulated Platform Required	3.61	3.29	3.54

The inclusion of the sub-category of whether the simulated platform was required or not had very little impact or no impact on the conclusions.

Again, reading the textbook and classroom discussion outperformed the trading platform when the simulation was not required. The classroom discussion did not contribute as much when the simulated platform was required. However, the reading of the textbook did contribute at a higher rate than the trading platform when the simulated platform was required.

Conclusions:

This study found studying the textbook and in-classroom discussion provided more helpful than the simulated options platform. The dataset itself was very small, taken from students and alumni who choose to participate in the survey. 73% of the participants were international students. This could have negatively affected the survey results as those students may have needed to spend more time with the textbook and in-classroom discussion due to the language barriers. In addition, the international students may have been more focused on the grade of the course as opposed to learning the material. If this is the case, the students would have been reluctant to spend more time utilizing the simulated platform.

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