Using storytelling to increase interest and recollection in finance concepts

Lonnie Bryant
The University of Tampa

Renard Harris
The College of Charleston

Abstract

The use of storytelling allows lecturers to engage students in a dynamic and enthusiastic way while encouraging students to develop a higher order of thinking and recollection. Storytelling allows the lecturer to show their interest in the material and in the students. Lectures can utilize the art of storytelling to communicate expertise and transfer information. This paper empirically examines the effectiveness of storytelling as a means of increasing student intrigue and recollection. We find that students recall a statistically significant 6.5% more of the storytelling lecture than those students who were exposed to the text book lecture. These findings suggest that the use of storytelling, incorporating current relevant economic factors, increases student interest in the lecture and student recollection.

Keywords: presentation, storytelling, finance, lecture, teaching

INTRODUCTION

Storytelling is an approach that can be used to raise a question or problem, engaging students in issue and in finding creative solutions based on their understanding and personal experiences. Storytelling draws out similarities among human beings. Labaree (2008) states that the content of the course of study and the nature of the pedagogy is less important than the fact of commonality. Garbett and Tynan (2007) assert that storytelling recognizes stories as the core of both human experiences and how we use those experiences to make meaning of the world. When discussing value as it relates to human interest and economics one person's story about value becomes another person's story with subtle differences (Harris, 2007). Creating stories about value as it relates to economics, encourages one to recall experiences with finances, and gives color to topics that could otherwise seem impersonal and disconnected.

Bishop and Kimball (2006) believe that listening and telling stories help individuals understand themselves and others. The way students speak about experiences, and the way they respond to the mundane and react to the unfamiliar is founded in the story of their culture (Harris (2007)). This suggests that a story can relay financial principles and concepts by allowing students to connect their experiences, however limited, to the content. Harris (2007) believes that the story of a student's culture whether it is a primary culture, a subculture, or a strong affinity informs and prioritizes his/ her values. Value as it relates to money is significant to one's cultural understanding of the economic system in which he/she lives.

When using storytelling the instructor is able to provide cultural narratives that can facilitate a student's reconstruction and reprioritizing his/her value of economics. Marks and Davis (2006) remind us that an economic system's major role is to allocate scarce goods and services to those who want and desire them. Hanushek and Kimko (2000) state that within the fundamental beliefs of contemporary economics education plays a central role in economic development as a valuable investment in human capital. Whether a student draws from personal experience or information gathered from home or community, using storytelling to personify value, positions value in that student's experience, home, and community. It becomes the student's responsibility to weigh the merits of this perceived value in terms of how it was treated from those experiences.

In this essay, we explore the art of storytelling as a means for students to be to able to build their understanding and provoke them to think critically and creatively. We empirically examine whether storytelling lectures increase participants recollection of the facts presented in the lecture. Comparing the examination scores of participates who heard the storytelling lectures to those who either heard the text book lecture, we report that storytelling lecture participants on average score 6.5% higher on their assessments. Thus, storytelling is means of combating fiscal misunderstanding within the society, and can be an appropriate departure from the conventional approaches used to address education. Finally, we close with an analysis of why storytelling can address the financial inefficiencies within the economy and how storytelling can facilitate the development of a fiscal responsible society.

STORYTELLING

An oral telling and a written telling are not the same. Storytellers are responsible for grabbing the audience's attention and holding it throughout the story. The storyteller's eye contact, enthusiasm, and sincere appreciation of the story he/she is telling helps the audience become a part of the story (Harris (2008)). Storytelling allows students to build their own understanding, how might this knowledge be applied and its implications.

Storytellers also have the responsibility of respecting and protecting the audience as they travel together through the story (Harris (2007). Storytelling has the power to foster inclusivity because it engages the imagination and emotions (Hilder (2005)). Hilder (2005) writes that the mission of a story is to widen awareness and awaken possibilities. Stories should have a definite beginning, middle, and end, and a call to adventure that initiates a physical, emotional, and spiritual journey for the main character (Bishop and Kimball, 2006; Ohler, 2006). Merry and New (2008) states that storytelling is a means to build character, pride, and self-respect; facilitating meaningful and purposeful activities; and fostering personal and collective responsibility and solidarity.

Stories require listeners to suspend their disbelief (Ohler, 2006). Listening is as much an art as telling. The audience listens to connect and see their own reflection in the story (Harris, 2007). But listening is not enough; students must actively participate (Neuman, 2006). Different levels of engagement are necessary to go beyond hearing a story to reflecting on a particular story and transforming (Garbett and Tynan, 2007). Listeners must ask themselves why they responded to the story the way they did. Using storytelling to encourage students to explore how they value their own economic wants and needs, driven by cultural norms, can potentially better prepare students to make healthy financial choices.

There is also an opportunity to build economic vocabulary when telling and listening to stories. Terms such as supply, demand, price, bank structure, savings and loans, debt and equity, book value, and market value become part of everyday language. Neumann (2006) explains that because language propels cognitive development, children use words to understand concepts. Stories are created from real life, imagination, or personal experiences and a magical intertwining of words.

THE ISSUE PRESENTED

The United States economy is facing its greatest financial challenge since the Great Depression of 1932. In light of the recent developments in the economy, there is much discussion as to what people understood about their financial positions and what has lead us to this point in history. This recession (economic downturn) has resulted in a significant decline in consumer confidence and established a widespread hysteria over the uncertainty of the financial future. This has lead to great debate as to how this economic situation developed and how the world rebounds from such an unfavorable state. The National Council on Economic Education (2005) suggests that the primary impetus of this financial disaster is the incomprehension and inexperience of financial consumers.

This article suggests an alternative method at which the average person should be taught the practices of feasible financial management and conscious spending. The extraordinary circumstances within the economy provides for a factually relevant discussion of the financial principles and concepts that influence our society. Today, the challenge is to

build a new sense of trust in the economy. This trust will only come with the correct understanding of the financial principles and concepts that the economy is founded. This study posits that if addressed with the use of storytelling to build a financial foundation then the probability of future financial hardships will be eliminated or at least minimized.

A continually recurring debate in finance education involves the applicability of financial theory to actual practice. The complaint voiced by many is that they are forced to learn theories that are not applicable in the "real world". Chan and Shum (2003) suggest that the use of more innovative and dynamic teaching methods should be considered to appeal to a wider audience of students, including those more creatively orientated. Such teaching methods may include active learning techniques that incorporate real-world scenarios. The financial crisis, which led to worldwide governmental intervention, is a perfect opportunity to utilize storytelling as a means of teaching financial theory and connecting that theory to real world applications.

RESEARCH DESIGN

The purpose of this study is to test the following hypotheses (H_0 and H_{0A}):
H_0: Lecturer use of storytelling makes a statistically significant difference in student recollection outcomes.
H_{0A}: Lecturer use of storytelling does not make a statistically significant difference in student recollection outcomes.

The test was conducted as follows. Four classes were offered during the Fall 2008 and Spring 2009 semesters in the School of Business. The reference sample course was from a Fall 2008 and Spring 2009 undergraduate mathematics course offered in the Mathematic Department. Both courses are required to obtain a degree from the School of Business. Specifically, the courses used were Introduction to Financial Management (FINC 303) [1] and Calculus for business and social sciences (MATH 105)[2]. To control for differential teaching techniques and deliveries, the same faculty member was used to lecture to each class. The faculty participating in this study is an assistant professor of finance who has been part of the teaching faculty for one year. Thus, the students have no previous exposure, expectations or perceptions of the lecturer. The faculty member has obtained a doctorate of philosophy in business administration with a concentration in finance.

The only difference for the classes is the lectures presented to each class. One set of classes will receive a lecture that is based on the current economics environment and presented in a storytelling fashion that includes the names and characters involved as well as the financial concepts and techniques. The other set of classes will receive the lecture provided by the publisher of the text book. The text book lecture explicitly discusses the terminology followed by a presentation of the concepts and techniques. Thus, essentially the only difference between the two lectures is the method of delivering the underlining financial

[1] FINC 303 is an introduction to the basic principles, concepts, and analytical tools of finance. It includes an examination of the sources and uses of funds, capital budgeting, and present value concepts and their role in the investment, financing, and distribution decisions of corporate enterprise. The course prerequisites are: Junior Standing, Accounting 203, 204, ECON 201, 202, MATH 104/250

[2] Math 105 Calculus for business and social sciences is a one-semester course designed to introduce the basic concepts of calculus to students who are not majoring in mathematics or the natural sciences. The emphasis of the course is on applications of calculus to various disciplines. Prerequisite: MATH 101 or placement.

theory and terminology. The latter slides of both presentations are exactly the same. The same quiz was administered immediately following each presentation. To control for the difference in interest in the material, each storytelling class was paired with a non-storytelling class. For example, the following classes are compared for analysis.

Introduction to Financial Management (FINC 303-001)
    Lecture- Text book Presentation
Introduction to Financial Management (FINC 303-002)
    Lecture-Storytelling Presentation
Calculus of Business and Social Sciences (MATH 105-001)
    Lecture-Text book Presentation
Calculus of Business and Social Sciences (MATH 105-002)
    Lecture-Storytelling Presentation

Data

In the Corporate Finance class for Fall 2008 semester, there were forty-six (46) students in section one and thirty-nine (39) students in section two. The Calculus of Business and Social Science class for Fall 2008 semester had an enrollment of thirty-three (33) in section one and thirty-one (31) in section two. During the Spring 2009 semester, the Corporate Finance classes had 34 and 32 students for sections one and two, respectively, while the Calculus of Business and Social Science class enrolled 32 and 33 students in each section.

An assessment quiz was administered to every student to ascertain whether or not students comprehend and took a greater interest in the presentation depending on the delivery method utilized during the presentation. Students were unaware that an assessment quiz would be administrated immediately following the presentation. The quiz also asked questions related to classification, gender and declared or undeclared major.

Table 1 (Appendix) reports the descriptive statistics for the classes and students participating in the study. The study sample consists of 285 students from the four classes. Of these students, 156 (54.7%) students are in the Corporate Finance course while 129 (45.3%) are in the Calculus of Business and Social Science course. As expected, the Corporate finance class is dominated by seniors and juniors and the Calculus of Business and Social Science class has more sophomores and freshmen. Majority of the students are females (57.9%) compared to males students (42.1%). Students that have decided to major in business administration makes up 38.6%, while the second largest major sub-sample are those students that have yet to decide on an major, 19.2%.[3] These percentages are consistent from semester to semester throughout the entire sample period.

Interpretation of Results

The frequency of the assessment scores as well as the mean, median and standard deviation are tabulated in Table 2 (Appendix). There are two interesting findings. First, in terms of presentation method, for both semesters the storytelling classes out-performed the text-book lecture classes, by approximately 5%. These results are irrespective of the type of

[3] Major includes those students that listed predeclared majors as majors.

class the presentation was delivered. Also, as expected, the Corporate Finance classes consistently out-performed the Calculus of Business and Social Science classes. Thus, those students perceiving the lecture to be more interesting and applicably increased the quiz average by approximately 6%. Anecdotal evidence seems consistent with the notion that students that take a greater interest in the lecture recall more of the material. In appears that interest in the subject and perceived applicability of the subject material lead to statistically significant improvements in performance.

Univariant Results

The testing methodology employed was a statistical test to determine whether the set of scores for the two test groups (storytelling versus text book lecture presentation) were significantly different. Thus, the presentation method is the variable in question. In particular, are the quiz scores from the sections where the storytelling presentation was utilized significantly different enough from those where the text book presentation was used to imply that the groups are different? To test for statistically significant difference, a t-test for difference between two independent sample means was used. The t-test in the last column in Table 3 (Appendix) confirms this conjecture. Comparisons of mean rating for the storytelling lecture to the text-book lecture show that they are significantly different at a 10% level (see Table 3 Panel A, (Appendix)). In addition, the difference between the type of class quiz scores yield statistically significant t-statistics in all comparisons at a 5% level. This suggests that students that have interest in the lecture performed better than those that did not.

Multi-variant results

Equation (1) examines how the class characteristics as well as student's characteristics impact performance.

$$\text{Assessment Quiz Score} = \alpha + \beta_1 \text{Storytelling Presentation}_i + \beta_2 \text{ Finance Class}_i + \beta_3 \text{ Gender}_i + \beta_4 \text{ Semester}_i + \beta_5 \text{ Classification}_i + \beta_6 \text{ Major}_i + \varepsilon$$

Given the results in Table 3, Panel A (Appendix), that shows the importance of the type of lecture, the results can be very different for the two different types of classes. Thus, we conduct a multiple regression analysis with respect to assessment quiz performance separately to identify the influences on performance. The results are presented in Table 4 (Appendix). Even though our primary interest is in the coefficient on the storytelling lecture binary variable, the coefficients on control variables also have appealing interpretations. First, as noticed in the univariant analysis in Table 3, there is a positive and statistically significant relation between student performance and the storytelling presentation. This finding shows that students recall approximately 6.5% more after participating in the storytelling lecture than the text-book lecture. In terms of classification as a determinant of student performance, results in model ii and iv show that the sophomore variable is negative and statistically significant, suggesting that seniors out perform their sophomore peers by 1.66%, on average. Second with the exception of the semester of the presentation, the importance of class type, gender and major as determinants are significantly correlated with student collection. The negative correlations between the regression equations for gender and

student performance, suggest that female student on average outperform male student by 9.28. Consistent with previous literature, gender appears to affect assessment performance (Halpren and LaMay, 2000). Third, the Major variable is positive and significant for the performance evaluation. It appears that, the students' interest in the material as measured by the declared major is an important factor in determining performance. Together with the positive correlation between storytelling and performance, it is clear that the performance of students can be very different depending on interest.

The only characteristic examined in relation to the presenter is the semester variable. The semester variable accounts for the degree of comfortableness that existent on the part of the professor. If the professor is not accustomed to presenting in a storytelling fashion, then this discomfort may impact the way in which the professor behaves, thus impacting the performance outcome. Thus the more often the professor presents the storytelling presentation the more familiar and comfortable the professor becomes. Table 4 (Appendix) reports no statistically significant interaction between the semester variable and assessment performance.

CONCLUSION

In this study, we explore the art of storytelling as a mechanism to educate students of the financial principles and concepts that can lead to a financially secure society. Currently, the U. S. economy is facing a daunting task to recover from the greatest fiscal downturn since the Great Depression. American citizens have taken extraordinary financial risks which have resulted in unprecedented levels of foreclosures, bankruptcies and debt.

This paper discusses the merits of using storytelling to educate students on the financial concepts that customers either ignored, forgotten, or were never exposed. This paper advances that storytelling is the proper method at which the average citizen should be taught the practices of feasible financial management and conscious spending. Storytelling creates an inner tension, a sense of anticipation or curiosity. This study has shown that the introduction of storytelling that links student interest and financial theory has led to an improvement in student performance. This is attributed to the fact that the use of storytelling was a successful active-learning tool that involved student recognition of some of the elements of the story. By incorporating a storytelling presentation, results from student performance reveal that a significant proportion of students have an increased recollection of the material covered. It was also found that this positive outcome was not related to the type of class but rather the increased interest in the lecture. These results support arguments that students that have a greater interest in the presentation have a perceived benefit between studying financial theory and its practical applications

By personalizing the problem, storytelling can change the minds, motives and capacities of students. The art of storytelling can provide students with knowledge, skills, and the moral convictions that are needed to establish a productive and financially stable community. Thus, the goal of a lecturer should not be to teach from the text book, but to understand the text-book theory and incorporate that theory into a storytelling presentation. That requires understanding of institutional details that are applicable and integrating them into a storytelling presentation.

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APPENDIX **Table 1 Course and Student Characteristics**

Panel A: Fall 2008

Class	FINC 303-001		FINC 303-003		MATH 105-001		MATH 105-002		Total	
	Observation	Percent	Observation	Percent	Observation	Percent	Observation	Percent	Observation	Percent
Size	46	30.87%	39	26.17%	33	22.15%	31	20.81%	149	100.00%
Classification										
Senior	19	41.30%	31	79.49%	0	0.00%	0	0.00%	50	33.56%
Junior	27	58.70%	8	20.51%	3	9.09%	2	6.45%	40	26.85%
Sophomore	0	0.00%	0	0.00%	27	81.82%	24	77.42%	51	34.23%
Freshmen	0	0.00%	0	0.00%	3	9.09%	5	16.13%	8	5.37%
Gender										
Male	22	47.83%	17	43.59%	13	39.39%	14	45.16%	66	44.30%
Female	24	52.17%	22	56.41%	20	60.61%	17	54.84%	83	55.70%
Major										
Business Administration	20	43.48%	19	48.72%	6	18.18%	7	22.58%	52	34.90%
Hospitality and Tourism Management	5	10.87%	10	25.64%	6	18.18%	3	9.68%	24	16.11%
International Business	6	13.04%	5	12.82%	2	6.06%	1	3.23%	14	9.40%
Accounting	9	19.57%	3	7.69%	5	15.15%	4	12.90%	21	14.09%
Undecided	2	4.35%	1	2.56%	12	36.36%	13	41.94%	28	18.79%
Computer Information Systems	0	0.00%	1	2.56%	0	0.00%	0	0.00%	1	0.67%
Economics	3	6.52%	0	0.00%	2	6.06%	3	9.68%	8	5.37%
Mathematics	1	2.17%	0	0.00%	0	0.00%	0	0.00%	1	0.67%

Panel B: Spring 2009

Class	FINC 303-001		FINC 303-002		MATH 105-001		MATH 105-002		Total	
	Observation	Percent	Observation	Percent	Observation	Percent	Observation	Percent	Observation	Percent
Size	34	25.00%	37	27.21%	32	23.53%	33	24.26%	136	100.00%
Classification										
Senior	15	44.12%	12	32.43%	0	0.00%	0	0.00%	27	19.85%
Junior	19	55.88%	25	67.57%	3	9.38%	6	18.18%	53	38.97%
Sophomore	0	0.00%	0	0.00%	16	50.00%	15	45.45%	31	22.79%
Freshmen	0	0.00%	0	0.00%	13	40.63%	12	36.36%	25	18.38%
Gender										
Male	16	47.06%	12	32.43%	14	43.75%	12	36.36%	54	39.71%
Female	18	52.94%	25	67.57%	18	56.25%	21	63.64%	82	60.29%
Major										
Business Administration	19	55.88%	23	62.16%	7	21.88%	9	27.27%	58	42.65%
Hospitality and Tourism Management	4	11.76%	2	5.41%	2	6.25%	4	12.12%	12	8.82%
International Business	2	5.88%	6	16.22%	3	9.38%	3	9.09%	14	10.29%
Accounting	3	8.82%	4	10.81%	5	15.63%	4	12.12%	16	11.76%
Undecided	2	5.88%	0	0.00%	14	43.75%	11	33.33%	27	19.85%
Computer Information Systems	1	2.94%	0	0.00%	0	0.00%	0	0.00%	1	0.74%
Economics	1	2.94%	2	5.41%	1	3.13%	2	6.06%	6	4.41%
Mathematics	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Spanish	1	2.94%	0	0.00%	0	0.00%	0	0.00%	1	0.74%
Art Management	1	2.94%	0	0.00%	0	0.00%	0	0.00%	1	0.74%

*Major includes those students that listed pre majors has majors.

Table 2: Grade Frequency

Panel A: Fall 2008		A	B	C	D	F			
Story Presentation		100-90	89-80	79-70	69-60	<60	Mean	Median	Std. dev.
	FINC 303-003	11	9	13	3	1	81.5	83	9.76
	MATH 105-002	2	8	9	7	6	75.8	73	19.05
Lecture Presentation									
	FINC 303-001	13	9	19	5	0	79.8	78	8.98
	MATH 105-001	5	7	8	7	4	71.3	70	19.42
Panels B: Spring 2009									
Story Presentation									
	FINC 303-001	9	10	12	3	0	82.4	85	11.6
	MATH 105-001	4	8	8	7	5	76	74	19.11
Lecture Presentation									
	FINC 303-002	7	12	14	4	0	78.9	80	12.21
	MATH 105-002	6	8	9	5	3	73.5	72	18.96

Table 3 Mean Difference Test

Panel A: Lecture Type

Fall 2008	Mean	Difference	t-stat
Story	78.86		
		2.48	1.72*
Lecture	76.38		

Spring 2009	Mean	Difference	t-stat
Story	79.3		
		2.85	1.71*
Lecture	76.45		

Overall	Mean	Difference	t-stat
Story	79.07		
		2.7	2.71***
Lecture	76.37		

Panel B: Class Type

Fall 2008	Mean	Difference	t-stat
FINC 303	80.56		
		8.18	5.99***
MATH 105	72.38		

Spring 2009	Mean	Difference	t-stat
FINC 303	80.58		
		4.68	2.35**
MATH 105	75.9		

Overall	Mean	Difference	t-stat
FINC 303	80.57		
		6.4	6.50***
MATH 105	74.17		

Table 4: Multi-variant Regression Analysis

Variable	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics
Story Presentation	6.65	1.87*	6.47	1.74*	6.4	1.71*	5.91	1.66*
Finance Course	12.12	3.27***	12.04	3.14***	11.83	3.01***	11.6	2.88***
Gender	-9.23	-2.60***	-8.88	-2.11**	-8.64	-2.03**	-8.17	-1.94**
Semester	-0.96	-1.07	-0.89	-0.99	-0.82	-0.83	-0.71	-0.67
Classification								
Junior			-0.82	-0.9			-0.8	-0.87
Sophomore			-1.66	-1.76*			-1.53	-1.65*
Freshmen			-1.08	-1.3			-0.99	-1.12
Major					7.04	1.93*	6.18	1.69*
Constant	44.74	7.11***	45.09	6.23***	41.87	5.99***	40.91	5.70***
Adjusted R-Squared	10.84		11.69		11.82		12.57	
N	285		285		285		285	