

Teaching Millennials: Time for a Change in Tactics

Gary Leinberger
Millersville University

Teaching Millennials requires a new approach to teaching basic corporate finance. Students bring both alternate and some weaker skills sets than prior generations of students. This requires a different set of tactics to provide a successful learning experience. The challenge is continuing to provide a strong basic course for majors in finance, while ensuring all non-finance students have a rewarding and successful educational experience. The use of outcomes assessment results helped to uncover the problems, and then guided the new approach. The use of first, repetitive quizzes and then later, additional hourlies led to a substantial improvement in student performance. The paper presents some quantitative results of a continuing attempt to modify an already strong basic corporate finance course to reach non-finance Millennial students. Some striking successes are noted as well as some potential areas for further improvements.

INTRODUCTION

The Millennial generations, also known as Generation “Y”, are the children of the Baby Boomers or Gen “Xers” (Strauss & Howe, 2000). Born between 1982 and 2004, they represent a very different group from preceding students and present a very different set of teaching challenges. However, with the proper educational environment, these Millennial students can outperform earlier students, despite lower entry scores on traditional testing measures.

As Millennials began to enter the basic junior level managerial finance class it became evident that a new approach was needed. The then-current rigor and coverage of the course was providing an excellent base for finance and accounting students. However, the perceived stress of the course was causing a decrease in finance majors, and causing the teaching of the course to become more stressful.

Moreover, the course was failing to provide for marketing and management students. The failure and drop rate for marketing and management students was high and growing. This paper presents some quantitative results that support the changes made to the tactics of the course while preserving the quality of the course.

The changes were mainly in the area of additional testing that was less stressful. Initially, more repetitive quizzes (weekly quizzes including re-testing on earlier difficult material¹) were given, and this produced better results. Then weekly hourlies were substituted for the quizzes, using the same re-testing of earlier difficult material.

More detailed instructions for assignments and tests were developed, with students receiving explicit rubrics for the major paper, and were provided with exact details on the problems on upcoming tests.

¹ “Difficult material” was defined as problems or essays where significant numbers of students had difficulty on the last quiz or test. In several cases testing of material was required more than twice.

This use of routine and less heavily weighted examinations, covering smaller blocks of information, with repetitive testing on difficult material, seems to fit the educational needs and expectations of Millennial students. Millennials also seem to need more specific directions for assignments and tests. Student outcomes have increased significantly, drops and failures are down, and the stress level for both students and instructor has decreased significantly.

BACKGROUND

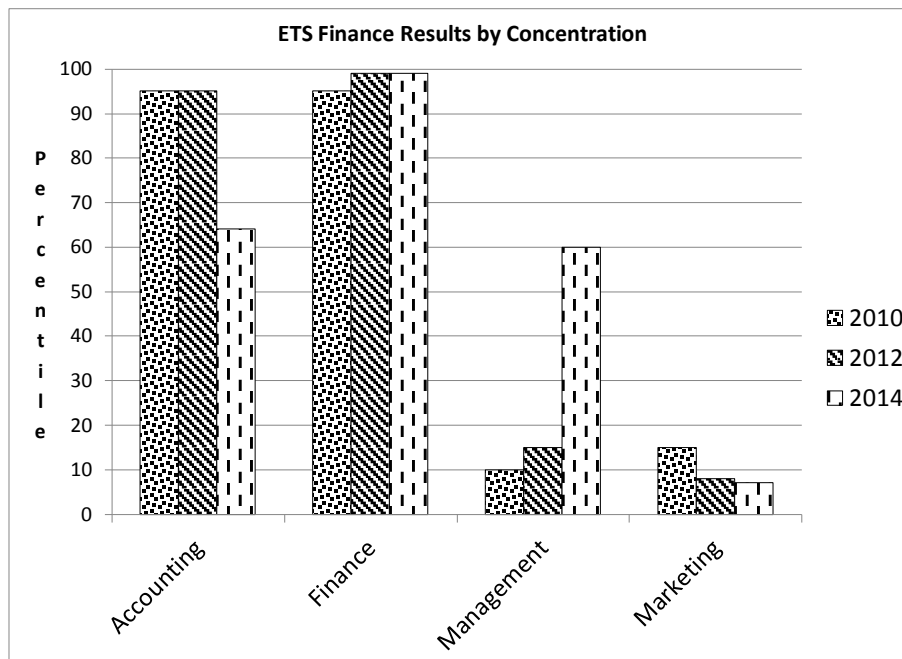
The Millersville University finance program has historically been very successful in placing students in good jobs, with both local and national firms. The results on the ETS® Major Field Test for the Bachelor's Degree in Business² demonstrated the quality of the program. Finance students ranked nationally in the 99th percentile in the past two tests in 2012 and 2014.

Managerial Finance is required for all business majors, and the finance program is not large enough to offer finance concentration³ only sections. The Business Department was split into two departments in 2008: Accounting and Finance, and Management and Marketing.

As Millennials began to appear in classrooms around 2002 there was a gradual but distinct change in results for the basic finance class. Classroom performance went down slowly and stress over the class grew. Finally, in 2010 the high number of drops and large number of students failing forced a serious evaluation.

Beginning in 2010 the business department regularly began using the ETS testing of college seniors as a bi-yearly outcomes assessment tool. The ETS test provides outcomes testing for students in a wide range of business areas, with results broken down by concentration. The testing results confirmed that the program content was very strong in finance, scoring in the 95th percentile (2010), 99th percentile (2012) and 99th percentile (2014). The other concentrations, particularly Management and Marketing, did poorly in Finance.

FIGURE 1

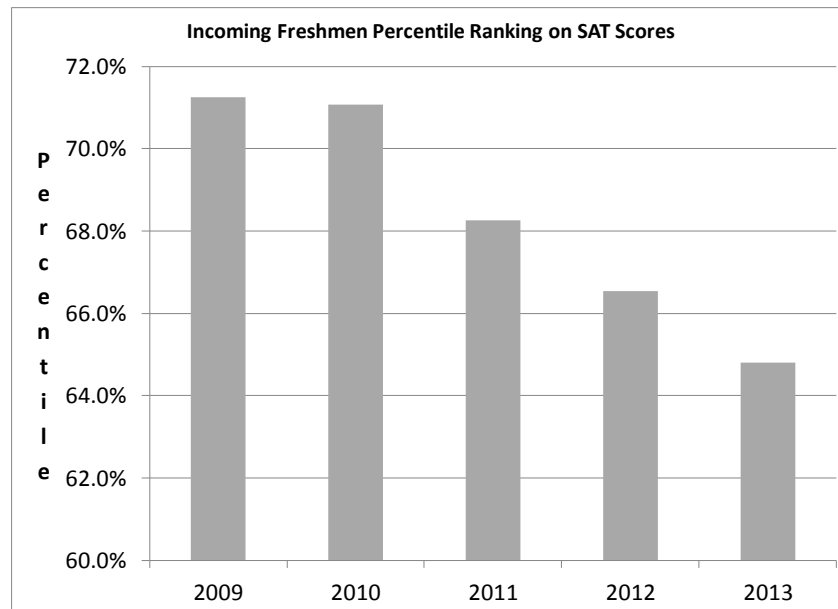


² In 2014 this included 489 institutions and 31,195 students.

³ The department offers a BS in Business Administration with concentrations in accounting, finance, marketing, management and international business.

These strong results by the accounting and finance students occurred during a period of decreasing SAT scores for incoming freshmen. While these students are different by year from the students taking the ETS® Major Field Test for the Bachelor's Degree in Business, the trend has been evident starting in the early years of the century.

FIGURE 2



The Problem

While the finance and accounting students (with the exception of accounting students in 2014) are doing well in finance, the results in the other concentrations were much weaker. Finance students have generally been the strongest students in our department, but the differences in the results across concentrations in the basic finance course were wider than one would expect. With weaker students each year, and no end in sight to this trend, the problem will be a continuing one in the future.

The finance concentration was also losing students, possibly meaning that more students who were interested in finance were discouraged by the difficulty of the basic course. The students who remained were very good, but the overall number of finance majors was going down.

This problem was also causing scheduling concerns. The number of students failing or dropping the course was increasing, which meant many more students had to repeat the course. As these students had accumulated more credits (despite failing or dropping finance) they received priority for the limited number of course seats for the next semester. This of course hurt graduation rates and kept younger students from moving on in the curriculum.

In addition, the number of students signing up for the course was dropping, despite the student perception that the course provided a very good background in finance and the popularity of the course with finance students.

Content of the Basic Finance Course

The basic finance course has been fairly traditional, with the exception of more emphasis on historical context and microeconomic theory. A basic dynamic microeconomic model (called in the course Theory of the Firm) is used throughout the course to tie together the various concepts in a dynamic fashion. (See Appendix A.)

The course covers the following areas:

1. An overall view of industrial revolutions (Perez, 2003). This provides a historic context and helps explain how over time financial capital (financing with stock returns based on future capital gains) changes to production capital (based on internal cash flow and bonds) as a technology matures and as the number of companies decrease. This is used to explain both the dynamics of the market place and the expected changes over time (and their careers).
2. Business cycles
3. Product Life Cycle theory explains how the number of firms decreases over time, with successful firms providing ever lower costs and greater features, based on economies of scale.
4. Theory of the firm reviews basic microeconomics with emphasis on the dynamics of constantly increasing fixed costs as a method to reduce variable costs which allows firms to reduce prices. This builds barriers to entry (high capital costs, low profit margins) and thus bankrupts firms that don't grow fast enough. This leads to maturing of the industry as the number of firms is decreased and the remaining firms grow larger.
5. An early section reviews accounting, especially depreciation (as a major part of cash flow), sources and uses, and ratios. The tools are presented in a dynamic format, looking at how changes in the firm are shown from an accounting standpoint over time. (A major flaw of our curriculum is that both the two economics courses and the two accounting courses required for the finance course are given in the freshman year, with the finance course coming in the junior year. Much review of basic accounting is needed.)
6. Forecasting (Leinberger, Teaching Forecasting in a First Finance Course, 2013) and cash flow with emphasis on Excel modeling.
7. Present Value
8. Capital Budgeting and how it relates to the theory of the firm and the earlier topics of product life cycle.
9. Cost of Capital and how optimal debt ratios allow firms to grow faster and thus improve their chances of being one of the remaining companies in an industry.
10. The course has a major paper (Leinberger, Reinforcing Basic Finance Concepts through a Research paper in a Basic Finance Course, 2012) researching a Fortune 500 company. Each student is assigned a different company. The paper requires historical research of the company, downloading and analysis of five years of SEC data, forecasting of three years, and analyzing the prospects for the firm. Over the past five years, an increasingly detailed set of three rubrics was used as guidance for the student and for grading by the instructor.

The paper's rubrics also provide more guidance for the students on the details required, and although the university requirement (for a writing course designation) is only one grading of revised prose (i.e., paper handed in twice), the instructor has broken the paper into three graded sections, each one increasingly more complete.

The paper is broken into discrete sections and tasks which closely follows classroom material. This assures that students learn a wide variety of financial research tools, but have a step-by-step way to apply classroom learning to a practical task. This also helps students see the overall approach to financial analysis and the inter-relationships of various accounting and financial tools. Numerous students have commented on the value of the paper in job interviews, citing the paper and its discussion in their job interview as a major reason for securing their jobs.

Original Testing in the Course

The course, until the Fall of 2013, had numerous quizzes (starting in 2012), two rigorous hourlies and a two hour comprehensive final. The final is generally about 140% of an hourly, but has over twice the time.

The hourlies and the final were problem and essay based. They tended to be long, in part to cover the material in a wide range of subjects, and required that students know a large number of the basic formulas. Often a large number of students did poorly on the first hourly and dropped, or were increasingly stressed to the point of becoming non-functional in the course.

These tests were challenging to the finance and accountings majors, but were becoming impossible for other students. This led to bi-modal results, and resulted in the last few years in a large number of drops and failing grades in non-finance and non-accounting majors.

Need for a Change

As shown above, the basic course was preparing finance and accounting students. The students were getting good jobs, going to graduate school and scoring well on national tests. The problem was, over the past ten years, the pass/non-drop rate in the course was going down until it reached about 40% of the starting students. This low pass rate particularly affected non-finance and non-accounting students.

While finance in all universities tends to be one of the more difficult courses, these low pass through results were gaining attention within the business department as well as the administration. This situation was causing a great deal of stress for students, which was thus counter-productive to the program.

This situation also resulted in a great deal of instructor stress. Extra review sections, more office hours and more efforts in the classroom were not providing any gains. In fact, things were getting worse.

Millennial Differences from Earlier Groups

Millennials have been described as special, sheltered, confident, team-oriented, conventional, pressured, and achieving (Strauss & Howe, 2000). Many of the students have “helicopter” parents who closely monitor the student’s activities and choices. This tends to result in students that are risk adverse, and unwilling to speak up in class or use the professor for help.

Other general observations:

1. Millennials can generally neither read nor write cursive. This increases their problems in writing essays, since they must print. Printing is far slower, and leads to thinking that is “sputtering” for want of a better term. There are also significant problems with carpal tunnel syndrome as printing places far more stress on joints, with constant stopping and lifting of the pencil point.
2. In grading these tests, comments from the instructor, generally in cursive, cannot be read by students. The feedback on tests is less helpful if in cursive.
3. The basic mathematical and writing skills of Millennial students tend to be worse than prior students. For example, it is necessary to spend significant classroom time to teach student to use the calculators they have been carrying for the past ten or so years in order for them to solve present value problems. In addition their functional use of mathematics is weak, requiring additional work on comprehending information provided in graph format.
4. Millennial students are used to more competency testing and seem to need constant feedback (Wilson, 2004), with review and retesting of problem areas.
5. Students are not as technologically savvy in Word and Excel as they are in social media. (Stanford, 2009)
6. Most students are working full or near full-time jobs. This drastically reduces their study time. A weekly review session available when no other classes are scheduled has not been very successful, normally only attracting the better students.

The Change

The initial changes in the course, started in the Fall of 2012 were the use of weekly quizzes to test basic material (especially accounting areas) and more inclusive rubrics for the paper. During the Fall of 2013 and Spring of 2014 the course was further changed with a focus on more feedback and less stress by switching to more numerous hourlies (nearly weekly), each covering less material. More inclusive rubrics were used to provide the students with detailed information on tasks.

TABLE 1

| | | Stage 1 | Stage 2 |
|---------------------|-------------|-----------|-----------|
| | | Fall 2012 | Fall 2013 |
| | Traditional | Spr. 2013 | Spr. 2014 |
| Hourlies | 2 | 2 | 11 |
| Hourly Rubrics | 0 | 0 | 11 |
| Quizzes | 4 | 7 | 4 |
| Quiz Rubrics | 0 | 7 | 4 |
| Course Homeworks | 4 | 4 | 4 |
| Connect HW Chapters | 9 | 9 | 9 |
| Final | 1 | 1 | 1 |
| Paper | 1 | 1 | 1 |
| Paper Rubrics | 3 | 3 | 3 |

The initial change to more quizzes resulted in some improvement. But the change that resulted in the most improvement was moving from two very difficult hourly examinations plus many quizzes to eleven smaller examinations that focused narrowly on specific topics. The problems in these tests are basic, with students knowing the problems in which they needed to show mastery (from the rubrics). In areas where students in general had problems, follow-up examinations repeated problems in these areas.

This “feedback loop” of retesting until mastery was attained reduced the stress of the course considerably. The students that already had attained mastery became stronger, and appreciated their continued success. The better students did not mind the repeated testing.

This was a shift from the earlier two-hourly-model that had an emphasis on problems requiring applying theory to more difficult situations. The emphasis now is on basic accounting and financial tools mastery and essays on basic theory. The integration and application of tools to more difficult problems is left to the final.

The final remained the same as earlier, but this final never had the time pressure of the hourlies. (The hourlies in the past were 50 minutes long, while the final, about 140% of an hourly in length, had a full two hours.) The final has always contained problems and essays that strive to bring together theory, tools, and problem solving of more complex situations.

There was little or no change in the essay material or the problems from the earlier examinations. However, each hourly had only one essay question instead of two, and the number of problems on each test was reduced. The finals remained the same length and required students to apply judgment to solve problems and essay questions.

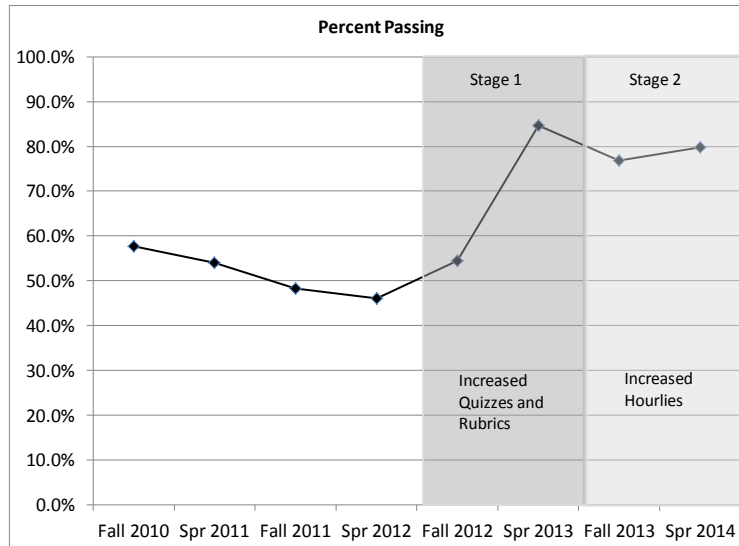
Hourly tests are graded in the next class meeting and signed by the grading student. A grading rubric is provided, with answers to the problems. The rubric includes a general outline of what was expected on the question and provides a review sheet for the students with the correct answers. The instructor then reviews the essays and grading, and returns the tests during the following class period. The time taken to grade the hourlies in class is about the same as going over the test in class so there is no net loss of class time. Forcing the grader to focus on what should be the correct answer seems to have more learning value than reviewing one’s own test.

The Results

The results of the change in tactics were measured in several ways. The goal was to keep the rigor and strong results of the class for finance majors, while bringing up the performance of other majors. An important part of this was to reduce the stress of the students.

On the following graphs, the dark gray area represents the period when additional quizzes and rubrics were introduced. The light gray area is from when the eleven hourly tests were introduced.

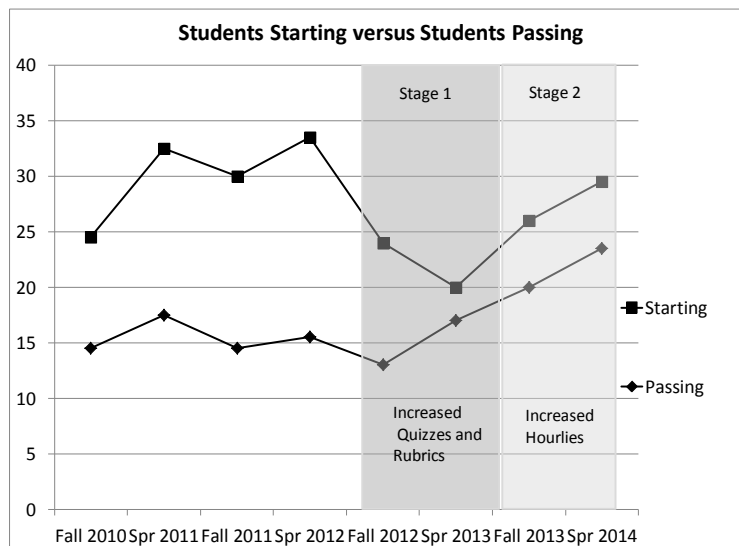
FIGURE 3



The first measurement was of the percent passing the course based on the number of students finishing the course. As can be seen, the improvement of the passing rate started before the final changes were implemented. The use of quizzes with constant re-testing on difficult areas started in the Fall of 2012 seems to have helped.

The second measurement was the number passing versus those starting the class.

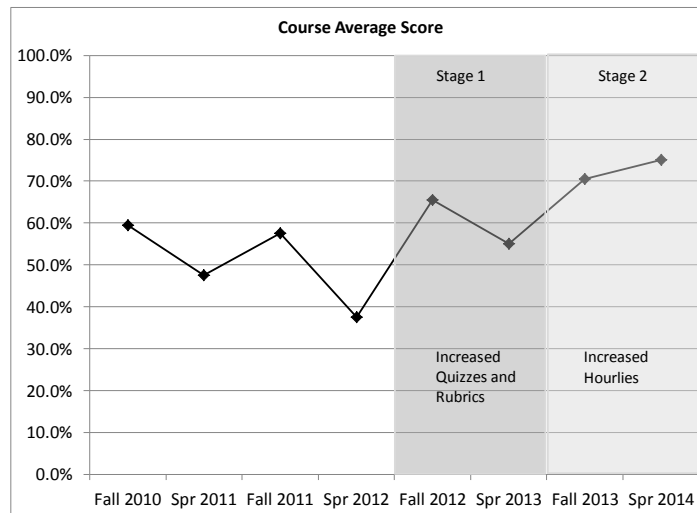
FIGURE 4



The graph above also shows the reduction in the number of students signing up for the course as well as the increasing number of students passing the course. (Generally the course is open to 30 students.)

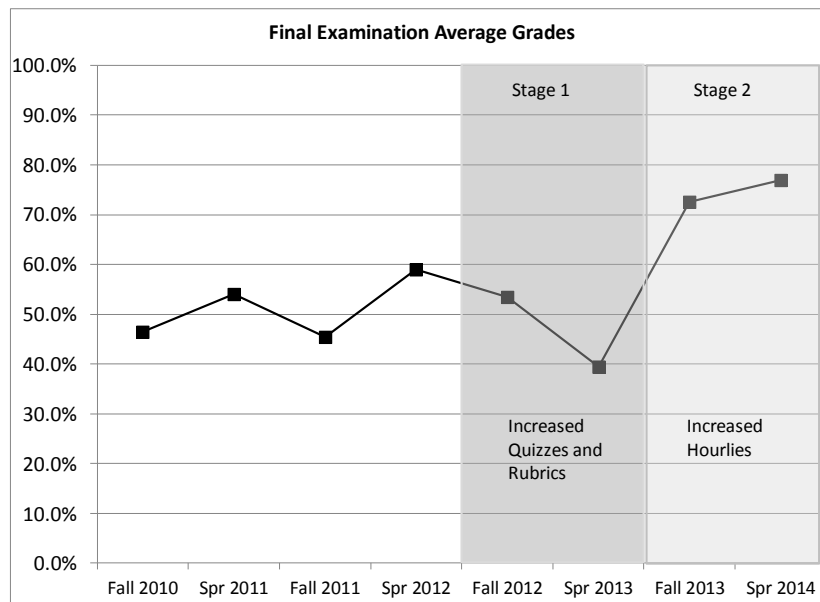
The third measurement is the course average score, which is the percent of total points earned by students finishing the course. Over time, the relationship of the percentage of total points to the grades awarded has remained very consistent.

FIGURE 5



The final measure looks at what the author feels is the most important measure of student achievement: what the student knows at the end of the course. The final examination for the course is a two hour comprehensive problem and essay test which has stayed constant in terms of difficulty across the presented period (and in fact over the past 30 years).

FIGURE 6



The Fall of 2013 and Spring of 2014 results show an 85% improvement from Spring of 2013 (the low point of recent testing).

CONCLUSION

The Millennials are very different from earlier generations of college students. However, with the proper educational environment, these Millennial students can outperform earlier students, despite lower entry scores on traditional testing measures. The approaches used to ensure a rigorous and effective classroom experience require some modification of earlier methods. Students seem to need additional testing, in smaller doses. Group grading seems to enhance learning. Additional feedback in the form of more tests on basic material and more detailed instructions on assignments seems to better set the stage for later integration of material on the final.

The stress of more work to afford schooling takes away from the time necessary to master complex areas of study. Millennials are used to more structured teaching, with clearly defined objectives. Rubrics help in this area, and provide structure to ensure projects are done on time. Clear definition of testing material ensures students learn basic concepts. Students, based on the results on finals, were able to integrate topics just as well, or perhaps better than earlier students.

The reduction in stress because of more tests (with each test counting less) and the consequent opportunity to recover from an early poor grade make for a much more secure and healthy learning environment. The course still needs some further modification as marketing students are continuing to do poorly in the class and the trend in SAT scores for incoming freshmen seems likely to continue.

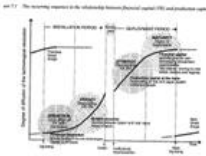
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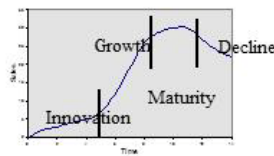
APPENDIX A

Course Material Outline

Technological Revolutions



Industry Product Life Cycle



Firm Decision Making

