Student Self-assessment for Undergraduate, Graduate and International Finance Courses

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Assessing student learning can be exceedingly challenging considering that as faculty we never really know what a student knows prior to entering our classroom and what value-added material has been assimilated during the academic quarter. This research paper introduces a self-assessment instrument that focuses on ten major finance topics and reports the results of the administration of the self-assessment tool for finance education at the undergraduate and graduate level in courses taught in the United States and abroad. Ten topics of importance to most finance curriculum design were selected as the focus topics. The research methodology employed uses a pre-/post- test comparison with "understanding" being measured on a five-point Lichert scale as implemented in five different finance courses. Significant measurable differences occurred in each of the courses using this finance assessment instrument with overall average improvement of understanding by the students as much as one entire point. For example,1.5 mean score for the pre-test and 2.4 mean score for the post -test for an introductory finance class at the undergraduate level in a college of business. Additional improvements were assessed in each of the courses surveyed.

Keywords: survey instrument, self-assessment, finance education

Institutional Context

California State Polytechnic University, Pomona, is one of twenty-three campuses of the California State University system. The university comprises eight colleges and schools including the College of Business Administration. The publicly somewhat-funded institution enrolls approximately 19,000 students: 16,000 undergraduates and 3,000 graduate students at the masters level. The College of Business Administration has the highest enrollment on campus, with slightly over 4,500 undergraduate students and approximately 200 graduate students.

The curriculum in the BS degree consists of 11 core classes of which finance has two classes: FRL 300—Introduction to Financial Management I and FRL 301—Introduction to Financial Management II. The Finance, Real Estate and Law department has one capstone class for the majors, FRL 440—Evaluation of Financial Policy.

The graduate MBA program has one prerequisite class in finance, GBA 546—Financial Management. The

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topics in all four classes are similar with greater depth of coverage occurring in both the capstone class and the graduate class.

A sister campus to Cal Poly Pomona is California State University, East Bay located in the San Francisco bay area. In addition to the on-campus MBA program, the program has been offered in Moscow for approximately 15 years. The MBA finance class in Moscow, FIN 6300 is similar in course content to that of the MBA class held on campus at Cal Poly Pomona.

Assessment

Assessment serves a valuable purpose completely independent of AACSB. Providing feedback as to the effectiveness of student learning should be a vital component of all educational endeavors. Attempts to quantify student learning in the classroom are far easier said than done. Research conducted in the field of pedagogy and specifically assessment of learning has been conducted for years. Self-assessment by students is a subset of assessment, often considered far less reliable than either direct measures (i.e., exam performance) or indirect measures (grade point averages of students).

An advantage of self-assessment during the time frame of one course provides an opportunity for personal reflection by the individual student as to the accomplishments (if any) throughout an 11-week or 16-week academic term. This personal reflection, in itself, may constitute worthiness despite the lack of robustness in academic research.

Added to other methods of measuring student learning, self-assessment can provide another dimension of a total picture for assessment purposes.

Survey Methodology

A self-assessment survey instrument consisting of ten terms of finance is administered to students on the first day of instruction and on the penultimate day of instruction (prior to the final exam) (see Appendix) of an 11-week academic quarter class. The Moscow MBA finance class was conducted in a compressed three-week module with 4/3/4 evening sessions during a three-week period.

Students are asked to put their names on the survey instrument so that a pre-/post- test comparison of individual responses would be possible. The identical survey was administered to undergraduate business students, upper-division finance majors, graduate students and international graduate students.

The number of classes and the number of completed and useable survey instruments is tabulated in Table1.

Table 1

Sample Size Self-confidence Assessment Survey

Class	No. of classes	No. of total students	No. of useable surveys
FRL 300	12	563	522
FRL 301	8	374	365
FRL 440	6	111	96
FRL 546	7	157	142
FIN 6300	2	82	79
Total	35	1,287	1,204

Survey Result

The four responses possible, "Not at All", "Not Very", "Somewhat" or "Very" were scored 1-4 respectively for analysis purposes. The mean score for each of the ten responses is reported for each type of class for both the pre-survey and then compared to the post-survey instrument.

FRL 300

This class is the first of a two-part core course for all business administration students. It follows two quarter classes of accounting. Thus, some of the topics covered in accounting would be identified by the students in the pre-survey. Specifically, items No. 3, "ROI" and item No. 4, "Breakeven Point" are both presented in the second of the two accounting classes. This would account for the higher recognition of these two pre-survey items and little increase in the scores on those two items in the post-survey.

Of particular concern in terms of research methodology is the scoring of items No. 5, "Beta", No. 6, "CAPM", No. 9, "WACC" and No. 10 "M & M" (Modigliani and Miller's Dividend Policies), as these topics are not covered in FRL 300, nor are they covered in the two accounting classes. Thus, to some extent, we may be seeing halo effect and/or this validates that there are statistical concerns in research methodology of self-assessment by students with respect to both validity and reliability.

The average mean score for all ten items in the pre-survey was 1.50 and the average mean score for the post-test was 2.40. Thus, there is quantification documentation of a change in students' awareness of the topics presented in the course (see Table 2).

Table 2

FRL 300 "Introduction to Financial Management I"

	Finance term	Mean—pre self-confidence	Mean—post self-confidence
1	Present value	1.2	3.6
2	Bond value	1.4	3.4
3	ROI	2.1	2.6
4	Breakeven point	2.3	2.4
5	Beta	1.4	1.2
6	CAPM	1.6	1.6
7	NPV	1.1	3.3
8	Terminal value	1.3	3.1
9	WACC	1.2	1.5
10	M & M	1.4	1.3

Note. Undergraduate core CBA class, self-confidence survey results, useable $N = 523$.

FRL 301

This class is the second of a two-part core course for all business administration students. The two finance classes follow two quarter classes of accounting ensured by requiring the accounting classes as prerequisites to the first finance class and the first finance class is the prerequisite of the second finance class. Some of the ten topics in this survey are not covered in this second course and the student input would be the result of retention from the previous finance class, FRL 300. Specifically, item No. 2, "Bond Value", item No. 3, "ROI", item No. 4,

"Breakeven Point" and finally item No. 7, "NPV" are all presented in the first finance class, FRL 300. Unfortunately, there can be a considerable time lag between the two finance classes, in some cases as much as one entire year. The lag time between FRL 300 and FRL 301 could explain why the identical topic scored in the post-survey of FRL 300 was lower (or less confident) in the pre-test of FRL 301. The students indicate regularly that there exists a "brain dump" between quarters which apparently can occur during the two-week quarter break for those students taking the classes back-to-back! This would account for the higher recognition of these two pre-survey items and little increase in the scores on those two items in the post-survey.

The statistical validity and reliability of the FRL 301 survey's results are consistent with the other courses for which this survey instrument was used.

The average mean score for all ten items in the pre-survey was 2.21 and the average mean score for the post-test was 2.90. Thus, there is quantification documentation of a change in student awareness of the topics presented in the course (see Table 3).

Table 3

FRL 301 "Introduction to Financial Management II"

	Finance term	Mean—pre self-confidence	Mean—post self-confidence
1	Present value	3.3	3.6
2	Bond value	2.6	2.8
3	ROI	2.1	2.3
4	Breakeven point	2.4	2.2
5	Beta	1.3	2.7
6	CAPM	1.4	3.1
7	NPV	3.6	3.8
8	Terminal value	2.3	2.4
9	WACC	1.4	3.2
10	M & M	1.7	2.9

Note. Undergraduate core CBA class, Survey results, useable $N = 365$.

FRL 440

FRL 440, "Evaluation of Financial Policy", is a class for graduating seniors with a major in finance. The students have typically completed at least four courses within the finance major prior to this class. FRL 440 is taught as a case-based class with a focus on the key topics of Beta, CAPM, NPV, and WACC, terms 5, 6, 7 and 9 in the survey instrument. It is expected that each of the ten topics identified in the survey are familiar to the students.

Low scores for topics No. 3, ROI and No. 4 "Breakeven Point" may illustrate the curriculum deficiency of not presenting these topics in duplicate courses thus the students may have limited exposure to the topics and/or they are not carrying over their knowledge from one course to another.

The average mean score for the ten topics in the pre-survey is 3.16, and the average mean score for the ten topics in the post-survey is 3.51. The small difference between the "Pre" and "Post" suggests that students entering this capstone course have considerable understanding of the topics/terms and the course is serving as an opportunity to apply the topics in case settings, preparing them for life after college (see Table 4).

Table 4

FRL 440 "Evaluation of Financial Policy"

	Finance term	Mean—pre self-confidence	Mean—post self-confidence
1	Present value	3.6	3.7
2	Bond value	3.5	3.7
3	ROI	2.8	3.1
4	Breakeven point	2.9	3.2
5	Beta	3.1	3.8
6	CAPM	3.7	3.8
7	NPV	3.8	3.7
8	Terminal value	2.4	3.3
9	WACC	3.2	3.7
10	M & M	2.6	3.1

Note. Capstone finance undergraduate class, survey results, useable $N = 96$.

GBA 546

The students of this graduate class have had little or no exposure to finance as an academic topic. This course is a prerequisite for the MBA core finance class and is required for those students who have either not had a finance class within five years or have a bachelor's degree in a non-business discipline.

Improvements (mean scores increasing) comparing the post-survey to the pre-survey indicates the student's self-assessment of the change of understanding of the finance term presented in the course. The average mean score for students from this class for the pre-survey is 1.87. The average mean score for the students from this class for the post-survey is 3.23 suggesting significant increased understanding of the terms (see Table 5).

Table 5

GBA 546 "Fundamentals of Financial Management"

	Finance term	Mean—pre self-confidence	Mean—post self-confidence
1	Present value	2.2	3.4
2	Bond value	2.8	3.8
3	ROI	2.3	3.3
4	Breakeven point	3.4	3.6
5	Beta	1.2	3.4
6	CAPM	1.3	2.8
7	NPV	1.6	3.1
8	Terminal value	1.4	2.7
9	WACC	1.3	3.5
10	M & M	1.2	2.7

Note. MBA graduate prerequisite, survey results, useable $N = 142$.

FIN 6300

The Russian students represent two years of instruction to separate classes in December 2006 and December 2008. The total number from the two classes was 82 students (28 from 2006 and 54 in 2008).

The mean score for the ten items identified a similar pattern to the graduate domestic MBA class (GBA 546) with a few exceptions. In general, the mean score increased for the "Post" student self-evaluation survey compared to the pre- student self-evaluation survey suggesting value added by the instruction occurring during the academic period.

The ROI score for question No. 3 suggests there may be a language challenge as to the use ratio terms. "ROI" or Return on Investment" is a term we use in our undergraduate and graduate courses in the United States but not necessarily in Russia.

The mean score for item No. 5, Beta, went down from 3.2 to 3.0. While not statistically significant as a drop, this may simply be an artifact of students not recalling what they scored on the pre-survey when they were completing the post-survey.

Item No. 8, "Terminal Value" is used in the process of computing Modified Internal Rate of Return, "MIRR". This technique of capital budgeting was not taught the students during their prerequisite class. To obtain textbooks in Russia, older editions of popular finance texts are used building in a dating of material as presented to the students (see Table 6).

Table 6

FIN 6300 "Financial Management"

	Finance term	Mean—pre self-confidence	Mean—post self-confidence
1	Present value	2.8	3.2
2	Bond value	2.7	3.3
3	ROI	1.6	2.4
4	Breakeven point	3.1	3.6
5	Beta	3.2	3.0
6	CAPM	2.5	3.1
7	NPV	2.7	3.2
8	Terminal value	1.4	2.2
9	WACC	2.4	3.6
10	M & M	1.7	2.9

Note. MBA graduate class in moscow, survey results, useable $N = 79$.

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Appendix: Survey Instrument

FRL 301 Fall 2009
Pre Self-confidence Survey

Name: _____

How confident are you that you could explain the following elements of Corporate Finance?
(Circle one of the four choices below)

> **Important:**
> Write a one-sentence definition/explanation
> for those terms about which you feel
> **very** or **somewhat** confident.

1	Present Value	Not At All	Not Very	Somewhat Definition:	Very
2	Bond Value	Not At All	Not Very	Somewhat Definition:	Very
3	ROI	Not At All	Not Very	Somewhat Definition:	Very
4	Breakeven Point	Not At All	Not Very	Somewhat Definition:	Very
5	Beta	Not At All	Not Very	Somewhat Definition:	Very
6	CAPM	Not At All	Not Very	Somewhat Definition:	Very
7	NPV	Not At All	Not Very	Somewhat Definition:	Very
8	Terminal Value	Not At All	Not Very	Somewhat Definition:	Very
9	WACC	Not At All	Not Very	Somewhat Definition:	Very
10	M & M	Not At All	Not Very	Somewhat Definition:	Very