Do Student Evaluations Match Alumni Expectations?
*A Study of a Specialized Master’s Program in Finance*

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**ABSTRACT**

Student evaluations have been commonly used in determining the success of a course and the effectiveness of its instructor. This research study seeks to identify what graduating students and alumni perceive to be of most value in courses, and in turn the relationship of those perceptions with the information in evaluations conducted at the conclusion of individual courses. Empirical results based on student and alumni survey data suggest key recommendations for both instructors and university presidents. If instructors want students, once they become alumni, to be satisfied with their course experience, they need to teach material which will be truly useful in their careers, even if students don’t fully appreciate it during class. And if presidents want satisfied alumni, they need to ensure their school’s curriculum includes material that may be applied in the real world, and that the measures of teaching effectiveness utilized for compensation purposes, don’t stress too highly traditional measures of student satisfaction.

**INTRODUCTION**

Student evaluations have been commonly used in determining the success of courses and the effectiveness of their instructors. Feedback is also generally used for compensation purposes, and to identify instructors who need supplemental training and courses that need to be reorganized.

There is an extensive literature studying student evaluations; relating instructor performance with student test performance, instructor behavior with overall instructor ratings, and the success of online classes with program design. Selective analysis has been conducted to define appropriate survey questions, and understand the accuracy of their measurement.

However, there has only been limited analysis of student evaluations as a measure of what matters most—the benefit to the student once they graduate and move into the real world. Is it fair to deem a course a success or failure by seeking student perceptions before they’ve had time to reflect, compare their experience with other courses and put what they’ve learned into practice in their broader lives? This issue is especially important in light of ongoing initiatives by the Association to Advance Collegiate Schools of Business (AACSB) to promote formal definition of learning objectives and metrics to measure the success of educational programs in meeting those objectives.
This research study seeks to identify what graduating students and alumni perceive to be of most value in courses, and in turn determine the relationship of those perceptions with the information in currently available end-of-course evaluations. The goal is twofold: identify what is truly important for measuring course success in the eyes of students once they’ve had time to reflect and put into practice their knowledge; and determine which survey questions best can forecast these metrics. The results of this study may be used to more effectively utilize readily available student survey data methods for measuring the benefits of course offerings and the effectiveness of course instructors.

LITERATURE REVIEW

The overriding goal of teaching is for students to learn what will be useful to them after they graduate, whether it is the rules of financial accounting or appreciation for Greek architecture. Key measures of success include student perception of the extent of learning and how useful the knowledge is to them. Common student surveys measure the first, and typically the instructor’s ability to encourage successful learning. However, students are not able to truly perceive the value of their learning until they’ve had time to reflect and practice applying their new knowledge.

According to the literature, there are different factors which influence student opinions of an instructor’s teaching effectiveness. Stapleton and Murkison (2001) found a strong positive correlation between instructor rankings and student perceptions of learning; however, no measure of actual learning was acquired. Heck, Todd and Finn (2002) found in one particular course taught by two different instructors that there was no direct correlation between the ratings instructors received and the learning that took place in those courses. Beyond learning, factors such as professor attitude (Kim, Damewood, & Hodge, 2000) instructor likability (Delucchi, 2000), and appropriate use of humor (Kher, Molstad, & Donahue, 1999) have all been shown to be positively correlated with student ratings of teaching effectiveness.

Alumni surveys provide a basis for evaluating how well the knowledge and skills developed through the educational program relate to the knowledge and skills required in the workplace (Jennings, 1989). Results from alumni research also provide a basis for examining the relationship between satisfaction with college and academic major (Richardson, 1993), perception of learning during college (Pike, 1993b), and subsequent work experience (Pike, 1993). As Williford and Moden (1989) observe, a unique feature of alumni surveys, compared with surveys of enrolled students, is the capability of documenting students' assessment of the quality of their educational experience tempered by their experiences since graduation. Alumni potentially offer an objective perspective given their distance from involvement with the program (Khalil, 1990). Delaney (1997) documents the importance of satisfaction with courses, perception of professional growth, and level of intellectual challenge on graduates' overall evaluation of a program.

MOTIVATION

A large university in the northeast United States offers a specialized graduate program in investment management providing focused training across 11 courses, providing instruction at similar or higher levels than that offered in a traditional MBA program. Courses include MBA-
style classes customized for investment management applications, and unique courses offering advanced training in theory and application, including casework. The latter offerings tend to be the more challenging classes, but one course heavy in mathematics is deemed challenging as well. Students proceed through the program in a cohort and all courses are required and exclusive to students in the program.

Student evaluations are collected at the end of each course, and a second survey, including two course-specific questions, is conducted at the end of the program. The goal for distributing the latter survey had been to determine which of the program’s courses were the most challenging and rewarding. A summary of the survey questions and mean levels for each measure in each course over the period 2003-2009 for six graduating cohorts are listed in Exhibit 1. Interestingly, the end-of-program rankings do not appear consistent with the end-of-course survey rankings, as illustrated in the exhibit. This motivates two questions. Do the student’s perceptions of what’s important for a successful course change by the end of the program, or are the two surveys’ questions measuring different things?

To quantify the apparent ranking differences, in the spirit of Endres, Chowdhury, Hurtubis and Frye (2009) we propose that overall course satisfaction is influenced by student satisfaction with the instructor and the student’s perception of their level of learning and the course’s career relevance. An estimated OLS regression of this model, illustrated by expression (1) is powerful (adjusted R-Square equals 0.969 and F statistic is 675.12).

\[
\text{Course-Satisfaction} = a_1 + b_{1,\text{Learning}} \text{ Learning} + b_{1,\text{Relevance}} \text{ Relevance} + b_{1,\text{Instructor}} \text{ Instructor} 
\]  

(1)

This confirms that perceptions of instructor performance and extent of learning determine overall course satisfaction, but that career relevance, while positively related, is not statistically significant at the 0.10 level. We further propose that the end-of-program level of “rewarding”, one measure of course success, is determined by the same factors, but also the students’ end-of-program perceptions of how challenging the course had been relative to others, illustrated by expression (2).

\[
\text{Rewarding} = a_2 + b_{2,\text{Learning}} \text{ Learning} + b_{2,\text{Relevance}} \text{ Relevance} + b_{2,\text{Instructor}} \text{ Instructor} + b_{2,\text{Challenging}} \text{ Challenging} 
\]  

(2)

The estimated power is not as high (Adjusted R-square is 0.218 and F statistic is 5.541), but interestingly, only coefficients for career relevance and challenging are statistically significant. Results for both regressions are summarized in Exhibit 2. While illustrating an apparent change in importance of career and instructor influences, the comparison involves two degrees of freedom. The end-of-program survey reflects time for student reflection and the opportunity for direct comparison between all program courses, and the end-of-program rewarding question measures a different perception than (though closely related to) the end-of-course question on overall course satisfaction.

These initial observations suggest further research is required to fully understand measures of course value in the minds of scholars, both as students and as alumni. Whitney (2005) and Wilson (1997) discuss the value of focus groups for educational research, which we
apply to further explore the measures of course satisfaction. Prior to collecting and analyzing alumni survey data, we conduct a focus group of 10 alumni, described in the following section.

FOCUS GROUP

A 10-person focus group, preceded by a short survey, is used to explore alumni views on measures for course success, and how they had changed since they were students. Observations from the meeting suggest a course’s career relevance and the instructor’s ability to bring the real world to the classroom are highly valued by alumni.

Focus group members indicate that course satisfaction is determined by the instructor’s ability to deliver material and lead discussion, but also the level of career relevance and extent of student learning. Alumni comments suggest that casework, guest speakers, “doing as well as learning” and “real world applicability” all influence the level of course satisfaction.

When asked the definition of rewarding, alumni suggest it means “something is worthy, relevant”, “it helps in the real world and application” and “something I can apply in the real world”. But it can also mean “what I take out”, “whether I learned everything that I needed for the exam” and “maybe a course that can’t be applied, but in which I learned something”. Based on the preliminary survey, the focus group’s ranking of rewarding courses is similar to the end-of-program rankings. Challenging means to the focus group those courses requiring time, focus and difficult math work. The group’s ranking of the three most challenging courses is identical to that in the end-of-program survey.

Consistent with the empirical results summarized in Section 3, focus group members express that there had been a change in the criteria they use to measure the success of a course once they graduate from the program. These include an increase in the importance of “extent of learning” and “career relevance” and a decrease in “instructor’s abilities”.

HYPOTHESES

There are two key hypotheses motivated by the observations gleaned from end-of-class and end-of-program student surveys and the focus group meeting. The first involves practicality of a course.

\( H1: \) Post-graduation, students believe career relevance becomes more important in determining the level of satisfaction for a given course.

This hypothesis is tested two ways: studying alumni perceptions of change in their measures of course satisfaction; and comparing regression results based on alumni course rankings with regression results based upon student rankings for the same courses.

The second hypothesis involves the importance of the instructor’s influence on course satisfaction.

\( H2: \) Post-graduation, students believe instructor performance is less important in determining the level of satisfaction for a given course.
This hypothesis is also tested with former student perceptions of change and comparing regression results.

**SURVEY DESIGN AND DATA**

A formal survey was conducted online to systematically collect alumni perceptions of course satisfaction and the factors determining it, and allow for a rigorous analysis of these perceptions. The main goals of this project are to identify what is truly important for measuring course success according to alumni experience in the real world, and determine which common student evaluation questions are consistent with these metrics. Focused on these two goals, the alumni survey was designed based on information from three main sources: 1) student evaluation surveys and the end of program survey, 2) relevant concepts identified from the focus group exercise, and 3) questions from the survey literature which have been proven to be valid measures of the topics of interest for this study. In addition, 6 more questions were included to facilitate collection of demographic characteristics of the survey participants.

The third group of questions were sourced from the Cooperative Institutional Research Program (CIRP), conducted by Sharkness, DeAngelo, & Pryor and presented in the Construct Technical Report (CTR) (2010); and from Delaney (1997). Questions from these sources measure coursework satisfaction, student’s self evaluation, intellectually challenging aspects of the program and program success preparing students for standards of professional practice. The CIRP undertook an exhaustive exercise to develop valid constructs based on the Item Response Theory (IRT) to provide reliable instruments. The survey developed by Delaney is based on a completed assessment study of a master’s degree teacher education program. The model presented was designed to create and utilize graduate follow-up studies to be effective instruments for assessment research.

For this study, emails requesting participation in an alumni survey were sent in early 2010 to 211 graduates; 190 receipts were confirmed. 76 surveys were completed by alumni, 68 of which included answers to course-specific questions. A list of the survey questions is provided in Exhibit 6. The sample distribution, by class, was compared with the distribution of the population, and is illustrated in Exhibit 3. The sample is broadly distributed with respondents from each cohort.

**TESTS AND RESULTS**

Tests are conducted on alumni perceptions of changes in their opinions, since they were students, regarding the importance of career relevance, extent of learning, and instructor performance for determining course satisfaction. The questions are asked in the form: “How have your personal CRITERIA for determining COURSE SATISFACTION CHANGED since you took your courses?” Two responses on a Likert scale of 1-5 were collected for each criterion, and Chronbach’s alphas were calculated to test the reliability of each construct, composed of the two responses. Each alpha exceeded 0.70 and was judged acceptable. A construct value greater than 3.0 indicates the respondent believes the variable is more important now than when they were a student.

Mean values are calculated and tested relative to 3.0 for each construct and displayed in Exhibit 4. The full results are not inconsistent with the hypotheses. For the total sample, alumni
express that each of the three determinants are more important now than when they were in graduate school. The importance of career relevance has increased to a marginally higher level than the other two; all increases are statistically significant at the 0.01 level.

A preceding question, asking if the “personal criteria for determining course satisfaction has changed” is used to exclude alumni who express that it had not changed. In this case the mean results are highly consistent with both hypotheses. Instructor influence is considered less important and career relevance and learning are considered now more important than when they were students. For example, the mean of relevance and learning change constructs exceed 3.5 and the mean level for instructor change construct is 2.9.

The second test of the hypotheses involves estimating a regression model in the same form as expression (1) using values from the alumni survey and comparing the estimates with the original results using student data, which indicated that career relevance was not a statistically significant determinant of course satisfaction using end-of-course student evaluations.

\[
\text{Course-Satisfaction}_A = a_1A + b_{1A,\text{Learning}} \text{Learning}_A + b_{1A,\text{Relevance}} \text{Relevance}_A + b_{1A,\text{Instructor}} \text{Instructor}_A
\]  

The regression model is estimated utilizing OLS for ease of comparison with estimates for (1), but is also estimated using logistic regression since 3 of the 4 variables are binary. The estimated regression model offers high explanatory power using both techniques. Results are summarized in Exhibit 5 and support the two hypotheses. The coefficient for career relevance is positive and statistically significant at the 0.01 level for both regressions and its value is larger than the other two coefficients; the instructor’s coefficient is the smallest and less than 2/3 of the size of the relevance coefficient. However, it should be noted that all three coefficients are positive and significant at the 0.01 level. Focus group observations confirm these results, suggesting one key value of an instructor is their ability to bring “real-world examples” and “applications” into the classroom.

Graduate students appear to understand a course’s relevance to a career and this information may be used to forecast alumni satisfaction levels. There is a 0.58 correlation between the level of career relevance for students and alumni. Estimating a modified version of expression (3) using Student values for Learning, Relevance and Instructor to forecast Alumni Course-Satisfaction yields interesting results. An OLS estimation suggests that the student values may be used to forecast alumni course satisfaction, with an adjusted R-square of 11.4%; student’s perception of career relevance is the only significant coefficient at the 5% level.

CONCLUSION

This study represents an initial analysis of a rich alumni dataset and there are several more topics to explore. One example involves studying the meaning and importance of “challenging” and “rewarding” and comparing the findings with results from analyzing end-of-program survey data.

However, there is a key conclusion from the work. Consistent with end-of-program survey and focus group observations, career relevance clearly grows with time in importance for determining course satisfaction. Career relevance is not a statistically significant factor for course satisfaction using end-of-course student survey responses, but grows to a statistically
significant determinant utilizing alumni survey data, larger than both the extent of learning and instructor performance; moreover, instructor performance becomes less important.

This conclusion places instructors in an interesting position. If they want their students, once they become alumni, to be happy with their course experience, the instructor needs to teach material which will be useful in the real world, even if students don’t fully appreciate it during class and it does not substantially help the instructor’s student evaluations. To help address this conflict, department heads can use the results from this paper to justify including career relevance of an instructor’s course in making performance evaluations.

University presidents may also be interested in the results of this study. If presidents want satisfied alumni, they need to ensure their school’s curriculum includes material useful for the real world, and that the measures of teaching effectiveness utilized for compensation purposes, don’t stress too highly traditional measures of student satisfaction. Perhaps one approach to ensuring a program’s success is to initiate a council of alumni, who can consult and provide advice on curriculum and how it is taught in the classroom—see Davis and Davis (2009) and Rosencrans (2003).

ENDNOTES

1 This may be called the “Silber hypothesis”, named after John Silber, former president of Boston University, who offered advice to new faculty members, guiding them to focus, as teachers, on what would be of most value to students in the long term.

2 Horace Mann (see Eakin, 2000) believed students should be taught practical knowledge that would help improve their lot in life.

3 Note that including a measure of “challenging” from end-of-course surveys does not improve the statistical power of expression (1).

REFERENCES


Exhibit 1
End-of-Course and End-of-Program Survey Questions, 2003-2009 (six graduating classes)

Panel A: Description of Student Evaluation Questions

<table>
<thead>
<tr>
<th>Survey</th>
<th>Variable Name</th>
<th>Survey Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>End of Course</td>
<td>Course-Satisfaction</td>
<td>Please rate this course: Course Overall</td>
</tr>
<tr>
<td>End of Course</td>
<td>Learning</td>
<td>Please rate this course: The extent of your learning</td>
</tr>
<tr>
<td>End of Course</td>
<td>Relevance</td>
<td>Please rate this course: Potential usefulness to a professional career</td>
</tr>
<tr>
<td>End of Course</td>
<td>Instructor</td>
<td>Please rate the instructor teaching this course: The instructor overall</td>
</tr>
<tr>
<td>End of Program</td>
<td>Challenging</td>
<td>What course did you find most challenging?</td>
</tr>
<tr>
<td>End of Program</td>
<td>Rewarding</td>
<td>Which course did you find most rewarding?</td>
</tr>
</tbody>
</table>

Panel B: Summary of Student Evaluation Measures
Mean Values, By Course, First and Second Highest Values in Bold

<table>
<thead>
<tr>
<th>Style</th>
<th>Course</th>
<th>Course-Satis. (1-5)</th>
<th>Learning (1-5)</th>
<th>Relevance (1-5)</th>
<th>Instructor (1-5)</th>
<th>Challenging (% ranked 1st)</th>
<th>Rewarding (% ranked 1st)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBA</td>
<td>One</td>
<td>3.95</td>
<td>3.77</td>
<td>4.11</td>
<td>4.37</td>
<td>0.014</td>
<td>0.023</td>
</tr>
<tr>
<td>MBA</td>
<td>Two</td>
<td>4.59</td>
<td>4.49</td>
<td>4.54</td>
<td>4.73</td>
<td>0.007</td>
<td>0.021</td>
</tr>
<tr>
<td>MBA</td>
<td>Three</td>
<td>3.63</td>
<td>3.56</td>
<td>4.00</td>
<td>3.62</td>
<td>0.022</td>
<td>0.017</td>
</tr>
<tr>
<td>MBA</td>
<td>Four</td>
<td>4.40</td>
<td>4.29</td>
<td>4.65</td>
<td>4.50</td>
<td>0.007</td>
<td>0.042</td>
</tr>
<tr>
<td>MBA</td>
<td>Five</td>
<td>4.34</td>
<td>4.21</td>
<td>4.39</td>
<td>4.51</td>
<td>0.037</td>
<td>0.155</td>
</tr>
<tr>
<td>Advanced</td>
<td>Six</td>
<td>3.39</td>
<td>3.34</td>
<td>4.10</td>
<td>3.36</td>
<td>0.272</td>
<td>0.270</td>
</tr>
<tr>
<td>MBA</td>
<td>Seven</td>
<td>3.66</td>
<td>3.52</td>
<td>4.08</td>
<td>4.00</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Math</td>
<td>Eight</td>
<td>3.41</td>
<td>3.41</td>
<td>3.82</td>
<td>3.51</td>
<td>0.280</td>
<td>0.076</td>
</tr>
<tr>
<td>Advanced</td>
<td>Nine</td>
<td>3.74</td>
<td>3.64</td>
<td>3.78</td>
<td>4.24</td>
<td>0.006</td>
<td>0.021</td>
</tr>
<tr>
<td>Advanced</td>
<td>Ten</td>
<td>3.50</td>
<td>3.47</td>
<td>4.18</td>
<td>3.56</td>
<td>0.203</td>
<td>0.254</td>
</tr>
<tr>
<td>Advanced</td>
<td>Eleven</td>
<td>4.00</td>
<td>3.91</td>
<td>4.15</td>
<td>3.91</td>
<td>0.007</td>
<td>0.019</td>
</tr>
</tbody>
</table>

Note: Course Satisfaction, Learning, Relevance and Instructor are all end-of-course evaluation questions, for a given course, on a scale of 1-5 with 5 being the best. Rewarding and Challenging represent the percent of the time a given course appears as the most rewarding or challenging based upon an end-of-program survey. Students averaged 28 per year per course.
Exhibit 2
OLS Regression Results of Course Satisfaction and Rewarding
(significant coefficients in **bold** at the 0.10 level)

**Model 1:**
Course-Satisfaction = \( a_1 + b_{1,\text{Learning}} \text{Learning} + b_{1,\text{Relevance}} \text{Relevance} + b_{1,\text{Instructor}} \text{Instructor} \)

<table>
<thead>
<tr>
<th>Coefficients</th>
<th>t Stat</th>
<th>P-value</th>
<th>F-Stat</th>
<th>Significance F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-0.136</td>
<td>-0.918</td>
<td>0.362</td>
<td>675.12</td>
</tr>
<tr>
<td>Learning</td>
<td>0.689</td>
<td>10.765</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>Relevance</td>
<td>0.036</td>
<td>0.591</td>
<td>0.557</td>
<td></td>
</tr>
<tr>
<td>Instructor</td>
<td>0.310</td>
<td>8.168</td>
<td>0.000</td>
<td>0.969</td>
</tr>
</tbody>
</table>

**Model 2:**
Rewarding = \( a_2 + b_{2,\text{Learning}} \text{Learning} + b_{2,\text{Relevance}} \text{Relevance} + b_{2,\text{Instructor}} \text{Instructor} + b_{2,\text{Challenging}} \text{Challenging} \)

<table>
<thead>
<tr>
<th>Coefficients</th>
<th>t Stat</th>
<th>P-value</th>
<th>F-Stat</th>
<th>Significance F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-0.223</td>
<td>-1.433</td>
<td>0.157</td>
<td>5.541</td>
</tr>
<tr>
<td>Learning</td>
<td>-0.025</td>
<td>-0.369</td>
<td>0.713</td>
<td></td>
</tr>
<tr>
<td>Relevance</td>
<td>0.104</td>
<td>1.636</td>
<td>0.107</td>
<td>0.218</td>
</tr>
<tr>
<td>Instructor</td>
<td>-0.016</td>
<td>-0.395</td>
<td>0.694</td>
<td></td>
</tr>
<tr>
<td>Challenging</td>
<td>0.416</td>
<td>3.455</td>
<td>0.001</td>
<td></td>
</tr>
</tbody>
</table>

*Note: Course Satisfaction, Learning, Relevance and Instructor are all end-of-course evaluation questions, for a given course, on a scale of 1-5 with 5 being the best. Rewarding and Challenging represent the percent of the time a given course appears as the most rewarding or challenging based upon an end-of-program survey. Yearly observations, averaged across on average of 25 students per course were used in the regressions.*
## Exhibit 3
Distribution of Alumni Survey Responses
All Graduating Cohorts, 2001-2009

<table>
<thead>
<tr>
<th>Cohort</th>
<th>Number of Responses</th>
<th>Percent of Total</th>
<th>Number Graduated</th>
<th>Absolute Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>9</td>
<td>11.8%</td>
<td>14.5%</td>
<td>2.7%</td>
</tr>
<tr>
<td>2002</td>
<td>3</td>
<td>3.9%</td>
<td>5.9%</td>
<td>2.0%</td>
</tr>
<tr>
<td>2003</td>
<td>4</td>
<td>5.3%</td>
<td>5.9%</td>
<td>0.6%</td>
</tr>
<tr>
<td>2004</td>
<td>8</td>
<td>10.5%</td>
<td>11.8%</td>
<td>1.3%</td>
</tr>
<tr>
<td>2005</td>
<td>13</td>
<td>17.1%</td>
<td>10.5%</td>
<td>6.7%</td>
</tr>
<tr>
<td>2006</td>
<td>8</td>
<td>10.5%</td>
<td>10.0%</td>
<td>0.5%</td>
</tr>
<tr>
<td>2007</td>
<td>8</td>
<td>10.5%</td>
<td>13.2%</td>
<td>2.7%</td>
</tr>
<tr>
<td>2008</td>
<td>11</td>
<td>14.5%</td>
<td>14.1%</td>
<td>0.4%</td>
</tr>
<tr>
<td>2009</td>
<td>12</td>
<td>15.8%</td>
<td>14.1%</td>
<td>1.7%</td>
</tr>
</tbody>
</table>

**Total** | 76 | 100.0% | 100.0% | 2.1%

Note: 76 surveys completed by alumni ranging 1-8 years past graduation, out of population of 212.
Exhibit 4
Alumni Perception of Determinants of Course Satisfaction Changes since Graduation
Reliability, Mean Values and Significance

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Relevance</th>
<th>Learning</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alpha</td>
<td>0.782</td>
<td>0.708</td>
<td>0.752</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>All Responses</th>
<th>Relevance</th>
<th>Learning</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>3.618</td>
<td>3.546</td>
<td>3.507</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>0.761</td>
<td>0.679</td>
<td>0.737</td>
</tr>
<tr>
<td>t-Stat vs. 3.0</td>
<td>7.084</td>
<td>7.010</td>
<td>5.992</td>
</tr>
<tr>
<td>Significance</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Observations</td>
<td>76</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Excluding Non-Change Responses</th>
<th>Relevance</th>
<th>Learning</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>3.628</td>
<td>3.570</td>
<td>2.907</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>0.725</td>
<td>0.712</td>
<td>0.503</td>
</tr>
<tr>
<td>t-Stat vs. 3.0</td>
<td>5.683</td>
<td>5.248</td>
<td>-1.213</td>
</tr>
<tr>
<td>Significance</td>
<td>0.000</td>
<td>0.000</td>
<td>0.116</td>
</tr>
<tr>
<td>Observations</td>
<td>43</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Each construct created from two item sets based on scale of 1-5 with 3 being the midpoint. 76 surveys completed by alumni ranging 1-8 years post graduation, out of population of 212.
Exhibit 5
Regression Results of Alumni Course Satisfaction
OLS and Logistic Regressions

**Model 1A:**
Course-Satisfaction\(_A\) = \(a_{1A} + b_{1A,\text{Learning}} \text{ Learning}_A + b_{1A,\text{Relevance}} \text{ Relevance}_A + b_{1A,\text{Instructor}} \text{ Instructor}_A\)

---OLS Regression---

<table>
<thead>
<tr>
<th>Coefficient</th>
<th>t Stat</th>
<th>P-value</th>
<th>F-Stat</th>
<th>Significance F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-0.075</td>
<td>-1.407</td>
<td>0.160</td>
<td></td>
</tr>
<tr>
<td>Learning</td>
<td>0.457</td>
<td>14.745</td>
<td>0.000</td>
<td>225.548</td>
</tr>
<tr>
<td>Relevance</td>
<td>0.496</td>
<td>2.507</td>
<td>0.012</td>
<td></td>
</tr>
<tr>
<td>Instructor</td>
<td>0.323</td>
<td>10.924</td>
<td>0.000</td>
<td>0.474</td>
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</tbody>
</table>

---Logistic Regression---

<table>
<thead>
<tr>
<th>Coefficient</th>
<th>Wald</th>
<th>P-value</th>
<th>Chi-Sq</th>
<th>Significance C-S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-4.289</td>
<td>47.861</td>
<td>0.000</td>
<td>403.434</td>
</tr>
<tr>
<td>Learning</td>
<td>2.499</td>
<td>110.333</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>Relevance</td>
<td>5.735</td>
<td>7.303</td>
<td>0.007</td>
<td>0.386(^a)</td>
</tr>
<tr>
<td>Instructor</td>
<td>2.088</td>
<td>79.562</td>
<td>0.000</td>
<td>0.560(^b)</td>
</tr>
</tbody>
</table>

\(^a\) Cox & Snell R Square
\(^b\) Nagelkerke R Square

Note: Figures in **BOLD** are significant at the .01 level or better

**Note:** Course-Satisfaction\(_A\), Learning\(_A\), Relevance\(_A\) and Instructor\(_A\) are all sourced from an alumni survey for one of 11 courses. 68 of 76 completed surveys included individual course perceptions. Course-Satisfaction\(_A\), Learning\(_A\) and Instructor\(_A\) are binary variables, reflecting whether a given course is perceived as offering one of the highest three levels of performance in that category. Relevance\(_A\) is on a scale of 1-5, with 5 being the best, normalized to reflect an equal mean with the other variables. Survey questions are provided in Exhibit 6.
Exhibit 6

ALUMNI SURVEY QUESTIONS

Panel A: Sources

10 items from course evaluations and end-of-program exit survey: questions 1, 2, 3, 4, 5, 6, 7, 9, 14 and 24
7 items from focus Group: questions 8, 10, 12, 15, 16, 28, and 29
6 items from other surveys (CIRP and Delaney): questions 11, 13, 17, 18, 19 and 23
6 items for demographics: questions 20, 21, 22, 25, 26 and 27

Panel B: Questions

COURSEWORK

1. Please rate the degree to which each one of the courses below has been USEFUL to your professional career since graduating from the program
2. Select the THREE (3) courses for which you would rate the EXTENT OF YOUR LEARNING most superior
3. Select the THREE (3) courses for which you would rate the EXTENT TO WHICH YOU WERE CHALLENGED BY THE CLASS most superior
4. Select the THREE (3) courses for which you would rate the INSTRUCTOR OVERALL most superior
5. Select the THREE (3) courses for which you would rate the COURSE'S OVERALL EDUCATIONAL VALUE most superior
6. Select the THREE (3) courses which you would rate OVERALL most superior
7. What course did you find most REWARDING?
8. What of the following terms do you consider as a definition of REWARDING?
9. What course did you find most CHALLENGING?
10. What of the following terms do you consider as a definition of CHALLENGING?

PROGRAM OVERALL

11. Please rate your SATISFACTION with the program coursework in each area:
12. How have your personal CRITERIA for determining COURSE SATISFACTION has CHANGED since you took your courses?
13. How INTELLECTUALLY CHALLENGING did you find the following aspects of your Master's Program?
14. Please rate your SATISFACTION with the program in each area:
EDUCATIONAL GOALS

15. According to your professional experience, how RELEVANT would you rate the following investment management EDUCATION GOALS for a graduate program in investment management?

16. According to your professional experience, how NECESSARY is it to achieve the following investment management EDUCATION GOALS?

17. According to your professional experience, how WELL has the MSIM program PREPARED you to achieve the following standards of professional practice?

SELF EVALUATION

18. Please IDENTIFY YOURSELF with the following sentences regarding your learning:

19. Rate YOURSELF on each of the following traits as compared with the average person your age. We want the most accurate estimate of how you see yourself:

DEMOGRAPHICS

20. Which of these areas would you describe as most closely related to your CURRENT JOB?

21. Please select your GENDER:

22. What YEAR did you graduate from MSIM?

23. How SATISFIED you are with your current job?

24. How SATISFIED you are with your CFA progress?

25. Please select your AGE range:

26. Did you receive honors or high honors when graduating from the MSIM program?

27. What was your approximate GPA when graduating from the MSIM program?

28. What else do you think the program should be focusing on to help graduates in real world? Be as specific as possible (Topics, methods, techniques, concepts, skills, etc.)

29. Did you participate in the December, 2009 Focus group?