

Developing A Customized Program Assessment Methodology For Assurance Of Learning: A Case Study

Hope Baker, Kennesaw State University
Dorothy Brawley, (E-mail: dbrawley@kennesaw.edu), Kennesaw State University
Jane Campbell, Kennesaw State University
Ernest Capozzoli, Kennesaw State University
Linda Malgeri, Kennesaw State University
Gary Roberts, Kennesaw State University

ABSTRACT

For most academic institutions, selecting and/or designing a Program Assessment methodology for Assurance of Learning is a challenging task. This paper describes the steps taken to establish goals, values and criteria driving this process for a College of Business. In this case analysis, we document the options we explored in finding the right vehicle for our particular situation. Our experience with a beta test and full rollout of our Program Assessment is detailed. After considerable research and a trial and error process, we have implemented a hybrid Program Assessment approach for our undergraduate students. This approach includes a business simulation product that has been customized and tailored for our institution along with locally developed major field exams. Our lessons learned from this experience include issues surrounding student resistance, faculty engagement, logistics, and the need to use multiple assessment vehicles.

INTRODUCTION

Assurance of learning (AOL) and associated outcome measurement is crucial to establish credibility that learning is in fact occurring within a program of study. Throughout higher education in the United States and abroad efforts are underway to develop AOL systems that function efficiently, effectively and at a reasonable cost. These systems can include either course-embedded assessments or end-of-program assessments or both.

Most institutions and faculty can readily define student-learning outcomes specific to their programs. Typically, an institution identifies six to ten outcomes for each program of study. However, the real challenge for most institutions arises with identifying assessment vehicles that accurately measure the results of the student learning. Selecting or designing appropriate vehicles that produce valid results is a challenging task. Faculty must choose between (a) using “off the shelf” approaches that have been developed outside of a particular institution or (b) devoting the time and resources needed to create customized assessment vehicles.

In this paper, we use a case study to describe our three-year approach to developing an end-of-program assessment for our Bachelor of Business Administration (BBA) program. We identify the problems encountered and the lessons that we have learned during this process. We hope that other institutions may avoid many of our mistakes while building on our successes as they develop their own Program Assessment process.

BACKGROUND AND LITERATURE REVIEW

Educational institutions are confronted with a massive and lengthy undertaking referred to as Assurance of Learning. The objective of any AOL process is to determine whether or not students are learning what is deemed important and how the institution can improve upon the process of learning. Ideally, an institution should strive to build upon observable strengths and improve upon observable weaknesses. To facilitate both the assessment process and ultimately student learning, an institution must ask the following questions:

- What core knowledge, attitudes, and skills should our students take away from the undergraduate BBA program?
- Are the stated goals and learning outcomes valid and reflective of our program?
- What assessment vehicles should we use to assess student learning?
- What metrics/benchmarking standards should be used to measure the level of student learning? Are these measures valid and reliable?
- How is the feedback from the assessment of student learning to be disseminated (to faculty and students) and utilized?
- How can our institution improve on the process of student learning?

It can be said “that which gets evaluated, improves; that which gets measured, improves exponentially” (Gose, 2003). Effective measurement of AOL outcomes is a prerequisite for program improvement. Learning outcomes are statements that specify what learners will know or be able to do as a result of a learning activity. Outcomes are usually expressed as *knowledge, skills or attitudes*. Vella, Berardinelli & Burrow (1998) state the purpose of assessment is “to determine if all of the learners developed important knowledge, skills and attitudes as a result of the program” (p.16). Utilization of a diversity of assessment vehicles provides a “holistic evaluation” of learners allowing for varied learning and teaching styles (Huba & Freed (2000); Muirhead (2002)). All institutions strive to find outcome measurements that are valid and reliable, and there are many tools and options available for a particular institution. The question is which vehicle(s) can best measure outcomes? Should an institution use one tool or multiple tools to measure outcomes? How can multiple measures be integrated to arrive at a convergence of student learning and program improvement?

Assessment And Accreditation

The call for identifying student learning outcomes and measuring the effectiveness of educational programs in attaining these outcomes has existed for decades. In the late 1980s, the U.S. Department of Education mandated assessment of institutional effectiveness as part of the regional accreditation process. Since then many state governments have similarly mandated assessment of student learning in public institutions. Obtaining accreditation is crucial for institutions and programs to receive federal and state funding.

In early assessment work, many educational institutions focused on input measures or process measures. For example, a department might track the SAT scores of incoming majors and consider the program successful if students were getting better over time. Or, a department might count the number of courses requiring a writing assignment as evidence of program success in the area of communication skills. In 2003, the Association to Advance Collegiate Schools of Business - International (AACSB) implemented new standards for accreditation that require business schools to:

- Define learning goals (student outcomes) for each program of study offered,
- Provide direct evidence of students’ progress toward attaining these goals, and
- Establish a process of continuous improvement based on the evidence gathered. (AACSB, 2003 Standards, <http://www.aacsb.edu/accreditation/standards.asp>)

The primary focus is now on outcomes assessment. Just because a teacher taught some material in a course does not mean that the students learned the material. In addition to AACSB, regional and other accrediting bodies for professional programs have also adopted similar standards.

Terminology

Assurance of Learning is the process of identifying that student learning occurs as a result of completing a course or program of study. Assessment is the method or vehicle used to measure this learning and can occur within a particular course and/or for an entire program. Course embedded assessment occurs within individual courses in the program. It usually measures a subset of the goals (student learning outcomes) of an entire program. The faculty member teaching the course or a group of faculty will identify a specific assessment vehicle designed to measure learning of one or more goals of the program. It is also useful to conduct an overall assessment of student learning at the end of an educational program. End-of-program assessment is much broader and typically includes measurement of all goals of a program of study, such as a BBA degree. End-of-program assessment can include performance-based and value-added assessments. Performance-based assessment measures whether students are performing at the levels expected by the faculty (Martell & Calderon, 2005). A value-added program assessment measures if a student learns as a result of completing a program of study; in other words, has the program made a difference in a student's knowledge, skills and attitudes? In this paper, we are focusing on our end-of-program, overall assessment of all of our desired student learning outcomes, which we will refer to as Program Assessment.

Comparative Methods For Program Assessment

There are numerous assessment methods available, ranging from multiple-choice tests, objective tests, surveys and observations of student behaviors as they perform tasks related to their careers. Faculty who want to implement a Program Assessment can obtain standardized tests from external sources or write their own. They can survey the students, the employers or recruiters of their students, or the faculty to get data related to student learning. Faculty can observe and grade student behavior themselves or invite other faculty, employers or other outsiders to serve as judges of the performances. In order to choose what approach or approaches to use for Program Assessment, faculty should understand the strengths and limitations of each, as well as consider their own priorities and constraints.

Prus & Johnson (1994, <http://www.wku.edu/sacs/prus&johnson.htm>) identified twelve assessment methods:

- Commercial Norm-Referenced, Standardized Exams
- Locally Developed Exams
- Oral Examination
- Performance Appraisals
- Simulation
- Written Surveys and Questionnaires
- Third Party Reports
- Exit Interviews and Other Interviews
- Portfolios
- “Stone” Courses (such as Capstone courses at the end of a program)
- Archival Data
- Behavioral Observations

Prus & Johnson also discuss the advantages and disadvantages of each method in detail. When deciding what assessment methods to include in a Program Assessment, their advantages and disadvantages must be reviewed in light of the learning outcomes to be assessed and the constraints on the faculty who must implement the assessment. If a method requires too much time, faculty will not be willing to use it or will not do a good job implementing it, and the resulting data will not be useful. It is a good idea to use more than one method. Doing so can increase internal validity by convergent validity or triangulation across the results. It is also a good idea to pilot test the method(s) chosen.

OUR CASE STUDY IN PROGRAM ASSESSMENT: THE BEGINNING

In order to understand our approach to Assurance of Learning and the criteria we used to develop our plan, it helps to have a little information about our University and College. We are part of a large regional state University in a growing Southern metropolitan area. Our student body is approaching 20,000 with over 4,000 students in the College of Business. There are in excess of 100 full time faculty in the College of Business. The University is accredited by SACS (Southern Association of Colleges and Schools) and the College of Business is accredited by AACSB (The Association to Advance Collegiate Schools of Business). Our University and College operate under a "teaching" mission for accreditation. The ratio of traditional age to non-traditional age students is currently 40:60. Students are formally admitted, upon acceptance, to the College of Business in their junior year.

Articulating Student Learning Outcomes: Goals And Objectives

In an intensive two-year faculty driven process, the College of Business identified six (6) primary goals (learning outcomes) to assure student learning for our BBA program. These 6 goals are broken down into more specific learning objectives. In addition, a seventh goal relating to discipline specific knowledge in Accounting, Economics, Finance, Management, Marketing & Professional Sales area was added during the second year of the process.

Our goals are integrated within and across the disciplines and build on each other. For both the students and the faculty, envisioning these goals fitting together like a puzzle reminds us of how mutually dependent we are on each other- how each of us has but a small piece of the whole. Synergy across the learning process can only be accomplished by working together to ensure that each of our individual pieces contributes effectively to the whole.

Exhibit 1: BBA Goal Puzzle



A detailed description of our goals and objectives is presented in Appendix 1.

Our three-year journey to create a useful Program Assessment began with the rejection of “Commercial Norm-Referenced, Standardized Exams.” These types of exams had been administered in the past by our Accounting faculty and the faculty was not satisfied with their usefulness. We initially attempted to use “Behavioral Observations” via an Assessment Center approach. This was effective for measuring "soft skills" such as interaction and ethics, but not so much for measuring "hard skills" such as critical thinking. Our experience then led us to a more sophisticated hybrid approach that combines the best of the “Simulation” method with “Locally Developed Exams.” Both of these assessments take place in our capstone course required of all our BBA students. At each stage of our

trek we identified problems along with the relative strengths and weaknesses of the Program Assessment design. Although not finalized, we are extremely satisfied with our current approach.

Pre-Work

With the initial impetus provided by AACSB's adoption of AOL standards, and a very supportive administration and faculty, our Program Assessment activities began in 2003. A committee of faculty was established with the chair of the committee appointed by the Dean. The committee had representation from each discipline and program in the College of Business. Although external constituents mandated this process, the faculty committee immediately took ownership of the more important student issues at stake: were our students actually learning, and how could we improve our program?

The desired learning outcomes were already established. Course embedded assessments were underway. The challenge for this faculty committee was to identify a Program Assessment vehicle to be used in our undergraduate BBA program. The two major options were off the shelf assessment vehicles that were developed outside of our institution or customized assessment vehicles that we would develop.

The committee spent considerable time reviewing the pros and cons of the alternatives. After that, we identified three major factors to be considered in selecting a Program Assessment vehicle:

- The measurement criteria (who and what would be assessed),
- The resources required, and
- The output/reporting content.

We also realized that we needed to consider our values in determining the appropriate Program Assessment approach.

Values Driving The AOL Assessment Process

The criteria we established to guide us in the development of our Assurance of Learning assessment program relative to our goals, structure, tools and processes included:

- Focusing on student learning and program improvement, rather than meeting some external (SACS, AACSB) or administrative standard.
- Being a faculty driven process versus an administration driven process.
- Obtaining and sustaining faculty buy-in for the process.
- Being flexible in our approach to the process - there are multiple ways to accomplish the goal.
- Developing multiple measures that will lead to greater validity and reliability for assessment efforts.
- Recognizing that AOL is a journey, not a destination.
- Committing individually and organizationally to this process from a long-term perspective.
- Establishing realistic expectations - we can't expect to accomplish everything immediately and measure all of the goals at one time.
- Reviewing and evaluating process logistics to develop a Program Assessment methodology that is both efficient and effective for over 500 undergraduates each year.
- Recognizing the need for a faculty reward system associated with meeting goals and improving performance relative to AOL.
- Creating assessments that meet AACSB and SACS requirements. AACSB is primarily concerned with overall Program Assessment (e.g., the BBA program). Our regional accrediting body, Southern Association of Colleges and Schools (SACS), is concerned with both program and major assessment of AOL. Therefore any measurement we do must reflect both.
- Assessing individual student performance. AACSB and SACS require an assessment of individual student learning rather than aggregate measures.

- Measuring performance in required courses since all students do not take the same elective courses, we cannot count on goal coverage in those courses as being sufficient for AOL. (Mapping our elective courses to the goals is part of the current process, but measurement in those courses is a longer-term goal. Elective courses reinforce learning objectives, but are in no instance solely responsible for attainment of a learning outcome.)

Measurement Criteria

The measurement criteria include all factors we selected for consideration in the assessment. After much discussion and brainstorming, we identified five critical items:

- One Program Assessment approach would be used for all students in our undergraduate program regardless of major. Based on this criterion, the knowledge and skills in our lower and upper division core courses would be assessed. Elective course content would not be considered at this time.
- The measurement vehicle must provide assessment results for our six interdisciplinary learning goals: critical thinking, ethics, interaction, perspective, resource management and technology. The only goal that would not be assessed is discipline specific knowledge. Our initial intent was to measure this learning outcome through our course-embedded assessments.
- Sampling would be acceptable. After our first year of implementation, this criterion was changed to assess 100% of the undergraduate students enrolled in the BBA program capstone course during the fall and spring semesters. (Summer semester is 8 weeks long and it appears to be physically impossible to fit the Program Assessment in during the summer. This has had some unanticipated consequences, but they are beyond the scope of this case study.)
- The assessment would not be tied directly to a program or course requirement; therefore, it would not be mandatory. This criterion was later changed to reflect a mandatory requirement within the capstone course.
- The assessment measurement must be based on direct student output. Indirect measures, such as surveys would not be used.

The resources required to implement the Program Assessment were considered. Our primary criteria were:

- Faculty Time – To create buy-in from the faculty at large, we knew the time commitment to implement and administer Program Assessment could not be excessive. A reasonable time commitment had to be established.
- Cost – The assessment vehicle selected had to be cost effective. The benefits derived must exceed the cost incurred.
- Physical Space – Our College of Business offers classes seven days a week, at all hours of the day. Finding a convenient location available at a reasonable time would be challenging.

The output or reporting content from the assessment vehicle was also considered. The Program Assessment approach selected had to satisfy many stakeholders. The primary criteria identified were:

- Each learning outcome needed separately identifiable results. To evaluate the results and implement changes in the curriculum we needed to isolate the results by goal.
- The results had to satisfy our multiple accrediting bodies, AACSB and SACS.

Based on the criteria established for our Program Assessment approach and our analysis of the viable alternatives, we decided to use an Assessment Center as our initial vehicle.

PROGRAM ASSESSMENT I: USING AN OUTSOURCED ASSESSMENT CENTER

Early on in the search for a Program Assessment process a pencil and paper testing approach, typified by the Educational Testing Service Subject Area Tests, was rejected. As mentioned earlier, our Department of Accounting had used some standardized tests in the past and found them unsatisfactory. Serious concerns were expressed about the validity of that approach. It was felt that “realism” was sacrificed via pencil and paper testing. Also, many of our learning outcomes are at a high level on Bloom’s Taxonomy and standardized objective tests fail to provide adequate measures of the higher level objectives. Two additional issues precluded the use of standardized tests. Stories about how some universities were actually “teaching the test” at the end of their program in order to show high scores began to appear in the informal literature, and secondly, a consensus developed among committee members that students deserved an opportunity to participate in something challenging, meaningful, memorable, and even fun- more than just another test at the end of their undergraduate program.

In late 2003 a decision was made to explore an Assessment Center approach as a means of Program Assessment. Dr. William Bommer, who at that time was teaching at Southern Illinois University, was developing a sophisticated “in-box exercise” called *ILIAD, The Indiana Leadership Index and Development Profile* (<http://www.kelley.iu.edu/tec/Baldwin.htm>). Participants were given a business case situation and information, and tasked to answer questions, make recommendations in writing, send letters, participate in a meeting, and make a structured presentation. Each of these was scored against standard rubrics. The meeting and the structured presentation were recorded onto video and scored from the videotape after the event. His design allowed him to keep the price at \$50 per participant, a figure that was reasonable and met budget constraints.

This process was not computerized, although the instructions and initial case information were provided to the students prior to the event on a CD. The scorers were trained so that inter-rater reliability was high. Other than the video components, a student’s responses were written on pencil and paper. Efforts were made to convince the author of the instrument to computerize the student response system, but were not successful. A sample group from our undergraduate classes was evaluated during two semesters in the academic year 2004-2005. In each semester 60 students participated in a dedicated Saturday Assessment Center experience as part of their capstone course.

The Assessment Center correlates with the method identified by Prus and Johnson (1994) as “Behavioral Observation”, measuring student actions in a natural setting via non-interactive methods. They describe this method as the “best way to evaluate the degree to which attitudes, values, etc. are really put into action,” giving it the most internal validity. Internal validity is one of the reasons we choose this approach first. Prus and Johnson also assert that “catching students being themselves” provides the most external validity.

A disadvantage of this method is the inconsistency of “grading” across observers. Prus and Johnson recommend the use of videotaping to increase the opportunity for reliable grading; therefore, we incorporated videotaping into our process. This method also has the potential problem of “observer effect”, students may behave differently if they know they are being observed. Therefore, observation should be as unobtrusive as possible. Special care must be taken if the learning objective being addressed involves socially or professionally sensitive behavior, such as ethical issues.

As expected, the Assessment Center provided strong, valid measures of Interaction and Ethics. Unfortunately, measures of hard skills (critical thinking, perspectives, resource management, and technology) derived from the functional areas of accounting, finance, operations, and strategy, were not as effective as we had hoped they would be. This was partially a result of the nature of the case used in the Assessment Center. This specific Assessment Center was originally designed to measure team and interpersonal issues, and did not include much in the way of these other skills. Additionally the number of items measured for each learning outcome was very low, limiting the reliability of our measurement.

Exhibit 2: Results of Assessment Center Fall 2004 (Sample size=n=40)

Learning Outcomes	Below Expectations ($< 30\%$)	Meets Expectations ($30 - 60\%$)	Exceeds Expectations ($>60\%$)
Critical Thinking nq=6	33%	27%	40%
Ethics nq=10	27%	35%	38%
Interaction nq=12	22%	40%	38%
Perspectives nq=9	37%	38%	25%
Resource Management nq=3	20%	65%	15%
Technology nq=14	15%	35%	50%
<i>Total Number Questions (nq)=54</i>			

Although the results in Exhibit 2 look useful, our overall critique of the process concluded that there were not enough questions in the Case inbox, and those questions that were there, simply were not very discerning. The former raised concerns over reliability and the latter over validity. We felt that we could do better. Attempts to address these concerns by introducing more questions based on numbers and quantitative analysis into the existing Assessment Center were met with resistance on the part of Assessment Center principals. At the current stage in their product's life cycle, they did not feel any compelling reasons to change to fit our needs. This presented a dilemma. The Assessment Center had been well received by both faculty and students; however, it was deficient – covering only half of our student learning outcomes. Reluctantly a decision was reached that it would not meet the needs of the College in its current format. After our less than satisfactory experience with an outsourced Assessment Center, we reevaluated our options and moved to a more integrated in-house assessment modality.

PROGRAM ASSESSMENT II: SIMULATION

Assurance Of Learning: Our Framework

An Integrative Approach To AOL

As we evaluated our options for assessment, in light of our criteria, goals and objectives, we developed an integrative three (3) pronged approach to program assessment as outlined in Exhibit 3.

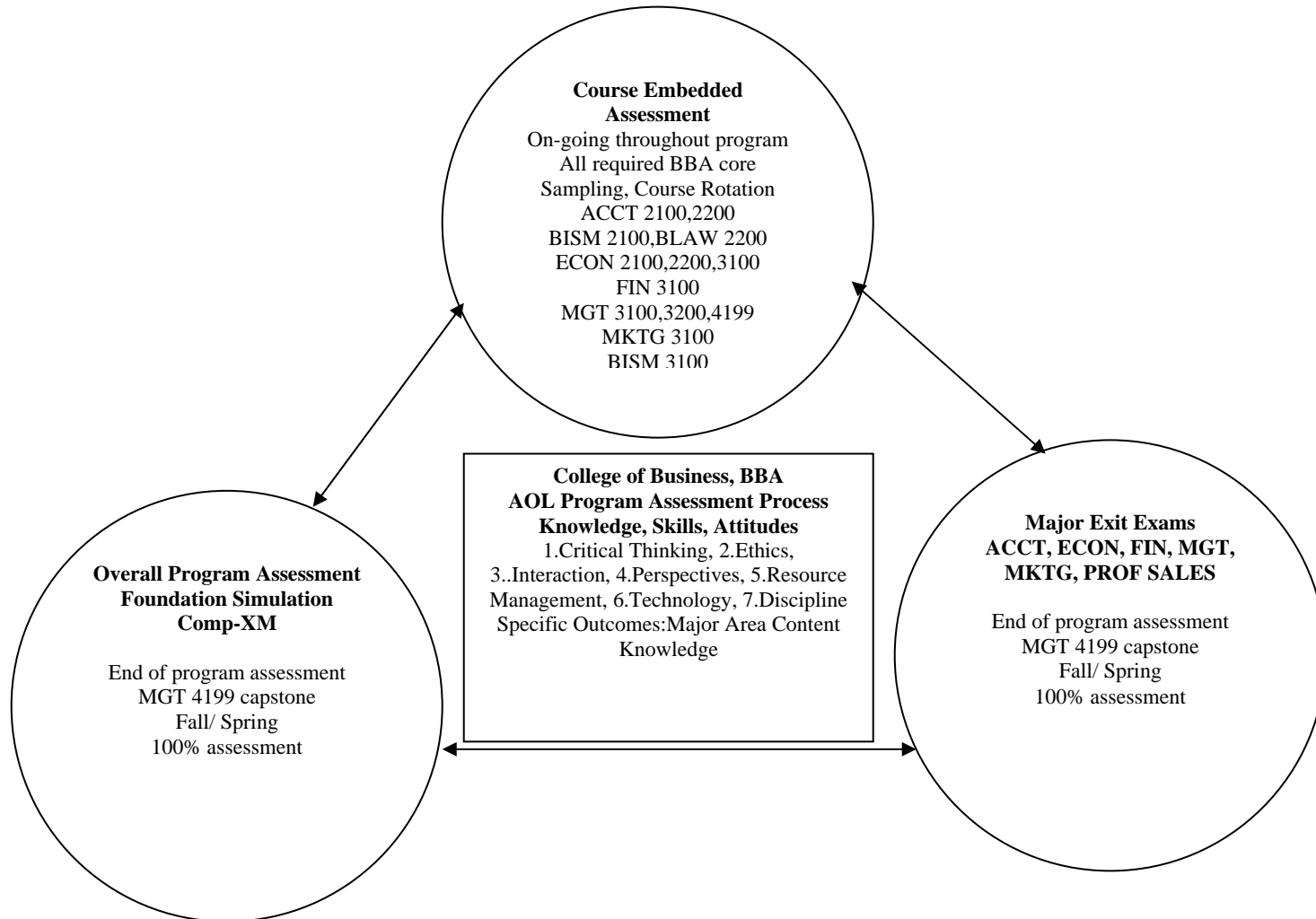
Our initial instinct in selecting a multi-tiered approach to assessment was to meet the needs of both overall program review and major area assessment. We tended to view each of the assessment processes as discrete, independent testing elements. It took a while to get to the *ah-ha* moment of recognition that it is the convergence of all three testing modalities that yields an effective program assessment process that is both valid and reliable and will give us the necessary data to improve our program.

In the middle of 2005, a decision was made to move to a Simulation vehicle. After reviewing available simulations, the committee chose the package provided by Management Simulations Incorporated (MSI) in Chicago, Illinois (<http://www.capsim.com>). They had two simulations, Foundation® and Capstone®. The former was appropriate for undergraduate level business majors and the latter was appropriate for a graduate business level.

The Capstone® Business Simulation and the Foundation® Business Simulation both provide a sophisticated enterprise simulation for educational purposes. They combine three primary learning methods:

- reading/hearing,
- demonstration, and
- participation.

Exhibit 3: A 3-Pronged Approach to Undergraduate BBA Program Assessment



They also provide a realistic simulation of the business environment. Both simulations have been tested and used by hundreds of thousands of students. Over the years, they have continually been improved and upgraded. These simulations were web-based and provided excellent metrics, and had been used at the College for almost ten years in both our Strategic and Venture Management courses. During the College's experience with them, they were found to be stable and robust.

Prus and Johnson (1994) classify "Simulations" as competency-based methods, which go beyond what can be assessed via tests and most other methods. These methods are better for assessing skills and for measuring the application of learning to specific situations because students are actually demonstrating the knowledge, skills or attitudes. They provide more useful results, but may also have higher costs. Prus and Johnson assert that a Simulation can be built for virtually any skill of interest, and although the up-front costs may be high, the longer-term costs are not. Simulations are more amenable to group administration, and computerization can reduce the inconsistency in task and "grading" across students, thus improving external validity.

MSI had recently developed a new product, CompXM®, which was designed to support Program Assessment when used as a supplement to Foundation® or Capstone®. CompXM® has a feature that provides users with the ability to incorporate additional questions into the simulation process. This allows an institution to utilize specific questions that relate to its unique program goals and objectives. In other words, the experience can be tailored to fit an institution's explicit needs.

MSI developed this new product, CompXM®, specifically for Assurance of Learning assessment required under accreditation standards for AACSB. It is designed to answer the question, "What did they learn?" It provides a means to measure stated learning outcomes, and has sufficient content to support broad learning goals. It also provides a convenient means of measuring the assessment of learning outcomes through both the Simulation and the "Board of Directors inquiries" that are an integral component of its process. Clear evidence (or the lack thereof) is provided of student mastery of knowledge, skills, and attitudes. Such outputs allow an institution to use the results to improve learning and program effectiveness.

CompXM® provided an approach that was relevant to our student learning outcomes. It also involved active student participation and engagement- a strong plus from our perspective. The AOL committee concluded that this product was a good balance between theory and practice, and that it provided an opportunity for our students to practice their learned skills and demonstrate collaborative learning.

The Beta Test: Fall 2005

A Beta Test of the Simulation approach to Program Assessment was conducted in the Fall Semester, 2005 in one section of our undergraduate capstone course (Strategic Management). The assessment was conducted in two parts:

- A business simulation practice phase (Foundation®) intended to teach the students how to do well in the simulation;
- A business simulation examination phase (CompXM®) consisting of two components: (a) a simulation and (b) a series of quizzes that ask questions related to the students' simulation environment and that are based on program goals and objectives. The quizzes are in the form of a set of queries from the simulation company's Board of Directors.

All participants registered at MSI's web site, and both parts of the examination were administered by MSI via web-based interfaces. Students paid by credit card. Because the CompXM® product itself was in beta testing, the cost was \$39.99 for both components of the assessment.

The Practice Phase (Foundation®)

The business simulation practice phase was designed to teach participants how to successfully operate a company in the simulation environment. Foundation® requires business knowledge and skills in Research & Development, Human Resources, Finance, Marketing, Production, Strategy, Tactics, Leadership and Teamwork. There is a learning curve associated with the simulation and this practice phase is intended to move participants down that curve prior to measuring their performance. In Foundation®, students run a \$40 million company for eight simulated years. The simulation is played as an individual competition in which our students compete against five computer-generated companies.

The Business Simulation Examination And Quiz Phase (CompXM®)

When each student completed the first phase, they progressed to the second phase. They did this at their own speed since both phases were self-paced. CompXM® is a new simulation that is similar to Foundation®. Each student is assigned to a company that has three years of performance history and is tasked with making business decisions for an additional four years. Concurrent with each decision and after the fourth decision, students are given an exam that asks discipline and learning outcome related questions based upon the simulation specifics and general business knowledge.

Beta Test Results

Thirty-six individuals participated in the Program Assessment. Individual student performance was classified as either below expectations, meets expectations, or exceeds expectations:

Exhibit 4: Student Results of Simulation-Beta Test, Fall 2005, n=36

Below Expectations	13 (2 did nothing*)	36%
Meets Expectations	19	53%
Exceeds Expectations	4	11%

**Our policy stated that all students must participate in the Program Assessment or receive an F in the capstone Strategic Management course. As a result, these two students did not pass the course.*

The AOL committee chose the range for benchmarking expectations for each category through a discussion process, recognizing that arbitrary boundaries needed to be identified in order to begin the process. These ranges will be revisited and modified based upon a more rigorous statistical analysis after more data are collected.

Exhibit 5: Results by Learning Outcome of Simulation-Beta Test, Fall 2005 (sample size=n=36)

Learning Outcomes	Below Expectations (< 30%)	Meets Expectations (30 - 60%)	Exceeds Expectations (> 60%)
Critical Thinking nq=10	61%	8%	31%
Ethics nq=10	33%	0%	67%
Interaction nq=7	38%	0%	62%
Perspectives nq=10	58%	21%	21%
Resource Management nq=10	56%	12%	32%
Technology nq=10	30%	2%	68%
<i>Total Questions=nq=57</i>			

Interpretation Of Beta Test Results

The questions developed by MSI for the queries in CompXM® were very sophisticated and were easily adapted to our learning outcomes. Unfortunately there were fewer than 30 questions, and most of the thirty were

oriented around financial issues in the simulation. Another 27 questions were developed by our AOL committee and quickly added to CompXM®.

After the Beta Test was completed, it was apparent that we needed to develop even more questions, specifically ones that measure objectives where there were fewer than 5 questions total. In retrospect, the queries in the first iteration of CompXM® were not broad enough to cover all of our objectives. Additionally a number of the learning outcomes needed additional questions in order to establish reasonable reliability. Only 1 or 2 questions were available to measure some of the outcomes, clearly not enough for our purposes.

Initial analysis indicates weaknesses in our BBA program in the areas of:

- Critical Thinking: only 36% met or exceeded expectations.
- Resource Management: only 44% met or exceeded expectations.
- Perspectives: only 42% met or exceeded expectations.

Program strengths exist in the areas of three learning outcomes for which students exceeded the 60% cut off for exceeding expectations:

- Ethics
- Interaction
- Technology

Painfully aware that our question set was too small to provide the reliability that we wanted from this process, we immediately solicited additional questions from faculty in each department covering both core and required field courses. These questions were reviewed by the AOL committee for incorporation into the Comp-XM® testing for Spring 2006.

PROGRAM ASSESSMENT III: SIMULATION AND MAJOR FIELD EXAMS

The Beta Test showed that the Simulation approach was viable. We liked the engagement and participation of the students, and student evaluations were high. A decision was made to move from the Beta Test to a full-blown, 100% measurement of our graduating BBA population during the Spring and Fall Semesters. As mentioned above, additional questions were solicited from faculty in each department covering both core and required field courses. An additional 150 questions were incorporated into the CompXM® testing for Spring Semester 2006.

The majority of questions used in CompXM® have been developed locally at our College. “Locally Developed Exams” give us more control over the content, and we can make them address the specific program learning outcomes of interest. The questions can be both objective and subjective. The results will then have more direct implications for program improvement. Prus & Johnson (1994) point out that the process of developing local tests provides the benefit of having the faculty consider what really is important for students to learn in their program. Tradeoffs are the considerable time required to develop these tests and to grade them, plus the lack of external validity. The lack of external validity can be somewhat mitigated by using multiple assessment measures and reviewing the consistency of the results across the measures.

New Program Assessment Component: Major Field Exams

During the Spring of 2006, the AOL committee decided to add Major Field Exams as another component of our Program Assessment process. After reviewing our regional accreditation standards, we were concerned that the Simulation and CompXM® were only measuring our core courses and did not address learning that took place within the Majors. SACS is concerned about performance in specific Majors within a program. In fact, SACS considers our Majors, not the BBA, to actually be our program. This is not congruent with the approach that AACSB takes, and we believed we needed to address the different perspective. The purpose of this new portion of the Program Assessment was to assess a student only on what he or she learned in his or her major field of study.

Spring Semester 2006 Activities

All students enrolled in the capstone course participated in the BBA Program Assessment during the Spring Semester of 2006. Three weeks of each class section were set aside for this Program Assessment. These weeks fell during a specific period: March 18 to April 8, 2006. Students participated in the assessment at their own self-pace, and completion of the assessment by all participants was planned for April 30, 2006, the last day of classes for the Spring Semester. The capstone classes did not meet during this time period. Eight sections and a total of 268 students participated in the assessment.

Prus and Johnson (1994) describe “stone” courses (capstone, keystone, or cornerstone) as required courses that not only have their normal instructional objectives, but also are primary tools for implementing Program Assessment activities. They assert that all faculty should consider these courses for their programs because they are “perfect blends of assessment and instruction to serve program quality improvement and accountability goals.” They identify no disadvantages to this assessment method. The placement of our Program Assessment into our capstone course appears to be congruent with what the literature suggests as appropriate.

The Spring 2006 Program Assessment was conducted in three parts: the first two identical to the Beta Test, with a new third part—the Major Field Exams. These three parts are:

- A business simulation practice phase (Foundation®) identical to the Beta Test.
- A business simulation examination phase (CompXM®) identical to the Beta Test, but with four times the number of questions in the test bank.
- Major field exams: Major field questions were incorporated into a WebCT/Vista platform and administered to students during the Program Assessment period. Each student was assigned, by major, to a test bank. For this portion of the assessment, students were only assessed on what they have learned in their major field of study.

Spring Semester 2006 Simulation Results

This iteration of the Program Assessment (using the CompXM® simulation) involved a much larger population (n=268) and a significantly larger question set (nq=165). We obtained measures for Critical Thinking (nq=54), Perspectives (nq=44), and Resource Management (nq=33) for which we felt confident that we had adequate validity (good quality questions) and reliability (sufficient depth of questions). Although Ethics (nq=11) and Technology (nq=11) had fewer questions, we were very satisfied with the quality of those questions, and will monitor results closely in the future to determine if we need to add to the number of questions. Interaction (nq=12) is the most problematic of our Learning Objectives. Not only is the question set small, but we have concerns about how well we are actually measuring the knowledge and skills contained in this Learning Objective. Additional work is needed to increase the validity and reliability of our measures for the Interaction Learning Objective.

The results provide strong support that the College is doing a good job of meeting its learning objectives. In all instances student performance at the “Below Expectations” level was less than 15%. Needless to say we were very pleased with these results. More questions still need to be developed for the Interaction learning objectives as the Simulation does not lend itself to easy measures of this objective. The results of Spring Semester 2006 CompXM® Simulation are detailed in Exhibit 6.

Exhibit 6: Results of Simulation by Learning Outcome, Spring 2006 (sample=n=268*)

Learning Outcomes	Below Expectations (<30%)	Meets Expectations (30 - 60%)	Exceeds Expectations (>60%)
Critical Thinking nq=54	9%	40%	51%
Ethics nq=11	7%	20%	73%
Interaction nq=12	8%	8%	84%
Perspectives nq=44	0%	62%	38%
Resource Management nq=33	12%	44%	44%
Technology nq=11	0%	67%	33%
<i>Total Questions=nq=165</i>			

Spring Semester 2006 Major Field Exam Results

Unfortunately, the new component of our Program Assessment, Major Field Exams, had results that were disappointing.

Exhibit 7: Major Field Exams, Spring 2006 (Sample=n=278*)

Department	n	Fails	Meets	Exceeds
Accounting	53	36%	64%	0%
Economics	13	69%	31%	0%
Finance	55	55%	45%	0%
Management	93	54%	46%	0%
Marketing	47	4%	79%	17%
Prof Sales	17	12%	88%	0%

*The difference in the sample sizes (n) between Exhibit 6 (n=268) and Exhibit 7 (n=278) is a result of a number of students who have double majors and took exams in multiple major field areas.

Only one major, Marketing, had students who exceeded expectations. Half of the majors had over half their students fail their respective Major Field Exam. An item analysis of all the questions in each exam indicates that the questions in the Major Field Exams were not very good. In each instance the discrimination average for the questions in each exam were below 50%. Ideally they should be above 70%.

Exhibit 8: Discrimination Averages for each Major Field Exam (Number of questions=nq=254)

Department	nq	AVG	#>.70
Accounting	55	0.39	1
Economics	20	0.33	1
Finance	17	0.36	0
Management	82	0.29	0
Marketing	32	0.41	3
Prof Sales	48	0.31	9

Total questions=nq=254

Work has begun on assessing the questions in the Major Field Exams and developing alternatives with higher validity.

Problems With Program Assessment III

Three major problems surfaced during the Beta Test and the first iteration of the full Program Assessment:

- Generally speaking about one-third of the student population did not readily accept the addition of the Assurance of Learning Program Assessment to their final semester. In simple terms, they felt “put upon.” In spite of a positive information campaign starting from the Dean of the College, there was resistance. Future iterations include strong change management sub-processes to insure that there is a high level of engagement and student “buy in.”
- Faculty engagement was a second problem. Again, in spite of a highly visible and positive information campaign about Program Assessment, many faculty chose to see this as an extra “add-on” to their already full, professional lives. It was hard to get good quality questions from the faculty that actually addressed program learning outcomes. In retrospect most of our problems with low scores on the Major Field Exams came from the lack of faculty involvement in the process of developing questions specific for the purpose of the Major Field Exam. The AOL committee has taken steps to increase the involvement of the Department Chairs in the overall process of directing their faculty in the development of questions for these exams.

- The simple logistics of running almost 300 students through a sophisticated business simulation in a single semester can be overwhelming at times.

In response to the above issues, a common Program Assessment website was designed to facilitate student buy-in, faculty engagement, and logistics. The website includes:

- Video introduction to Program Assessment and welcome from the Dean of the College;
- How to win at Foundation® - Read this first instructions;
- How to get started;
- Foundation® tips and guide;
- Registration link and info line for technical questions;
- Discussion Forums;
- Frequently Asked Questions;
- Link to Major Field Exams.

In addition, the Dean of the College added an incentive that he will write a personal letter of recommendation for the students that do best on the Simulation and CompXM®. He will also take these students to a celebratory business lunch at a local restaurant. The Department Chairs are also offering similar premiums to the highest scorers on their Major Field Exams.

LESSONS LEARNED AND FUTURE DIRECTIONS

Our College Program Assessment process began in 2003. We moved to a Simulation after experimenting with an in-box Assessment Center approach. The Assessment Center provided excellent measures of performance for student learning outcomes relating to Interaction and Ethics. We were not satisfied with the measures of performance related to Critical Thinking, Resource Management, Perspectives, and Technology. Because only half of our outcomes were properly measured in the Assessment Center, we determined that a simulation experience would be a better mechanism for our Program Assessment vehicle. We also found it very difficult to develop a process for measuring discipline specific learning outcomes using the Assessment Center.

The College Program Assessment process in its current form was implemented for the first time in Spring 2006. It was a well-thought out plan that was beta tested in Fall 2005 prior to full implementation. This allowed us time to modify both the content of the assessment as well as the process before the full rollout involving 100% of our students in the capstone Strategic Management classes. Our approach used a well-respected and tested Simulation that was customized to meet our College requirement for assessing our specific program learning outcomes. This Simulation provided an excellent platform for Program Assessment. Each student was placed in a realistic business setting and then tasked to make decisions about running his/her own business in a very competitive environment. As they made these decisions, they were presented with a set of comprehensive questions about these decisions (and other closely related areas). They were also asked to provide supporting analysis for the choices that they made through a series of quizzes. We feel that this process provided excellent metrics concerning the knowledge, skills, and attitudes that are developed during their BBA program at the College. We also felt that it provided a wonderful learning experience for our students.

Currently we feel that we have excellent metrics in the Simulation experience for our learning outcomes related to Critical Thinking, Resource Management, and Perspectives. We are able to ask specific questions relating to these outcomes about a student's company, using numbers and concepts directly related to the idiosyncratic performance of each student. Furthermore, we are able to gain reasonably good metrics for the outcomes of Technology, Ethics and Interaction by using general business questions relating to broad events taking place in the Simulation, even though they are not tied directly to specific measures of company performance. Exhibit 8 shows the coverage of our learning outcomes experienced with the Assessment Center as compared to the Simulation.

Exhibit 9: Learning Outcomes Measured

Learning Outcomes	Assessment Center	Simulation
Critical Thinking		X
Ethics	X	X
Interaction	X	X
Resource Management		X
Perspectives		X
Technology		X








For our regional accreditation, we recognized that we needed more robust discipline specific data. Therefore, in addition to the Program Assessment, we incorporated major field knowledge assessments both within the CompXM® and in the development of Major Field Exams. We are satisfied that we have an acceptable method for measuring individual discipline specific (major) learning outcomes using these multiple modalities.

Our Program Assessment process is now well defined. But, our Assurance of Learning efforts do not represent a static process. Continuous assessment and improvement of our program, as a result of changes brought on by incorporating the findings from this data collection effort, is the goal. We will continue to tweak both the Simulation and CompXM®, along with the Major Field Exams, in order to provide a more valid and reliable assessment approach for both program and major field knowledge. Only with a longitudinal analysis of results can we begin to understand if our assessment efforts are providing us valid and reliable evidence of actual student learning and program effectiveness.

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Appendix 1: College of Business-BBA Program-Goals and Objectives

Goals and Learning Objectives - Classified as: Knowledge = What knowledge should graduates have acquired? Skills = What skills should graduates have acquired? Attitudes = Attitudes, Values or Dispositions graduates should acquire?	
Goals	Learning Objectives
 <p>1.0 Critical Thinking Business majors will think critically, identify problems, research and analyze solutions and make decisions regarding business activities. (knowledge & skill)</p>	<p>1.1 Identify problems and opportunities. (knowledge) 1.2 Locate and apply appropriate research tools and databases to generate alternative solutions. (knowledge & skill) 1.3. Evaluate data in order to compare and contrast alternatives to reach a defensible solution. (skill)</p>
 <p>2.0 Ethics Business majors will recognize, analyze and choose resolutions to ethical problems explicit or implicit in decision-making. (attitude, knowledge & skill)</p>	<p>2.1 Explain the appropriate code of ethics that applies to a discipline in a business situation. (knowledge) 2.2 Analyze and compare resolutions to ethical issues encountered in a business environment. (attitude & skill)</p>
 <p>3.0 Interaction Business majors will demonstrate professional behavior through the effective use of collaboration, leadership and communication skills. (attitude, knowledge & skill)</p>	<p>3.1 Discuss the importance of working cooperatively with others. (attitude) 3.2 Work with others in a professional manner. (skill) 3.3 Explain the skills necessary to influence, inspire and motivate individuals and groups to achieve results. (knowledge) 3.4 Effectively communicate information to individuals with diverse backgrounds.(attitude & skill)</p>
 <p>4.0 Perspectives Business majors will identify, interpret and analyze the impact that legal, global, industry and customer environments have on business decisions. (attitude, knowledge & skill)</p>	<p>4.1 Describe the external forces (e.g. legal/regulatory, economic, global, industry, and customer) applicable to business operations. (knowledge & attitude) 4.2 Analyze the impact of external forces on business operations. (skill) 4.3 Integrate the impact of external forces in business decisions. (skill)</p>
 <p>5.0 Resource Management Business majors will manage resources to implement decisions and maximize the creation of value. (knowledge & skill)</p>	<p>5.1 Identify relevant resources to produce a product or service. (knowledge) 5.2 Appropriately manage resources based on their recognized availability. (skill)</p>
 <p>6.0 Technology Business majors will identify opportunities to leverage technology in decision-making and can use technology for personal productivity (knowledge & skill)</p>	<p>6.1 Identify and operate appropriate computer software for analysis and data presentation. (knowledge & skill) 6.2 Effectively use technology to improve personal productivity. (skill)</p>
 <p>7.0 Discipline Specific Outcomes (knowledge, skill, attitude)</p>	<p>7.1 Accounting: Business majors will prepare and effectively use accounting information and reports, and understand the importance of and threats to quality information. (knowledge & skills) 7.2 Economics: Business majors will identify and evaluate the trade-offs and corresponding opportunity costs necessary to operate in a market economy. (knowledge, skill & attitude) 7.3 Finance: Business majors will recognize, differentiate and evaluate the investing and financing decisions of corporate enterprises (knowledge & skill) 7.4 Management: Business majors will demonstrate knowledge and discuss the creation and coordination of efficient and effective organizational systems. (attitude, knowledge, & skill) 7.5 Marketing & Professional Sales: Business majors will formulate appropriate plans to respond to market place threats and capitalize on market opportunities. (knowledge & skill)</p>

NOTES