The Role that Large Scale, Integrative Simulations Can Play in Fulfilling AACSB Learning and Assessment Goals

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Abstract

The Association to Advance Collegiate Schools of Business (AACSB) recognizes that business simulations have substantial educational value within business curricula. This paper’s theme is that large-scale, integrative business simulations (LSIBS) represent a significant opportunity to augment and assess learning. In their own right, they can contribute to many of the AACSB’s assurance of learning requirements. Additional enhancements and assessments tools can be overlaid on the typical LSIBS to further expand the learning opportunities and provide systematic documentation regarding the degree to which learning has occurred. Clearly, no single assessment tool can fully meet the assessment requirements of either a course or a curriculum. However, an assortment of assessment tools embedded within an LSIBS can achieve a comprehensive, possibly even a 360°, assessment of learning within a business school.
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The Role that Large Scale, Integrative Simulations Can Play in Fulfilling AACSB Learning and Assessment Goals

Introduction

The Association to Advance Collegiate Schools of Business (AACSB) grants accreditation to undergraduate and graduate business administration and accounting programs. In 2003, its members approved a revised process and set of standards supporting and encouraging excellence in management education. Under the new guidelines, AACSB requires that business schools outline their learning objectives, measure how well they are meeting these objectives, and complete the feedback loop by updating and refining programmatic activities and course requirements.

This new thrust heralds a landmark change in how business schools are to conduct themselves. Historically, the focus has been on the inputs to education. That is, educators have been concerned with designing and offering courses to provide the necessary skills to be successful in business. Now, the focus has been expanded to include education’s outputs with business schools now being tasked to assess how well they develop the skills to be successful in business.

This change requires that we also change our mindset. Historically, we tested (or used other classroom methodologies and requirements) to determine if our students met our learning objectives. If they did not, the fault was theirs. As a result of the AACSB changes, professors and program chairs must continue to determine if students meet the learning objectives. However, if students do not meet those objectives, the fault is now ours. Those involved must examine the process to determine why the intended outcomes did not materialize and make adjustments, refinements, and any other changes to ensure student success.

The 2003 AACSB process can be summarized in four steps:

Step 1: Define the learning objectives.
Step 2: Design the curricula and courses to achieve the learning objectives.
Step 3: Assess how well the learning objectives are being met.
Step 4: Adjust either the learning objectives or the learning methods to better achieve the objectives.

For any educational tool, educators are now required to address the following issues:

Assessment of classroom methods: Did this pedagogical tool provide the desired learning? How good is the method? Specify the learning objectives by assessing both the students and the method.

Assessment of curriculum: Can the tool be used to reveal something about the broader curriculum? How good is the curriculum?

Skillful adjustment by the educator: Can instructors use knowledge gained in an assessment to dynamically adjust the learning process, thereby elevating the learning outcome?

Skillful adjustment by the student: Can the assessment provide meaningful feedback to students so they can adjust their efforts to master the subject matter?

AACSB recognizes that business simulations can contribute to a business curriculum’s learning objectives. According to AACSB’s Eligibility Procedures and Accreditation Standards for Business Accreditation (2009, p 57),

“The most effective learning takes place when students are involved in their educational experiences. Passive learning is ineffective and of short duration. Faculty members should develop techniques and styles that engage students and make students responsible for meeting learning goals. Many pedagogical approaches are suitable for challenging students in this way – problem-based learning, projects, simulations, etc.” (Emphasis added.)
This paper’s primary purpose is to examine the role simulations can play in attaining AACSB’s goals. First, we will explain how these simulations inherently contribute to important learning goals. Second, we will portray the typical integrative simulation’s progression. Third, we will introduce several activities and tools that can be overlaid on a typical, large-scale, integrative simulation and describe how they can help achieve an even broader set of learning and assessment objectives.

These activities and tools were developed and tested at the University of Tennessee and, with some modification, adopted and tested at West Virginia University. Based upon this experience, we will conclude the paper with the proposition that a 360° perspective on learning is obtainable through combining an integrative simulation and a set of activities and tools that can be overlaid upon it.

### The Role of Large Scale, Integrative Simulations in Accomplishing Assurance of Learning Goals

Large-scale, integrative, business simulations (LSIBS) represent fertile ground for meeting many of AACSB’s learning objectives. LSIBS provide students the opportunity to manage a complex organization over an extended time in the face of great uncertainty. Students are required to apply their knowledge by thinking and acting in an integrative manner as they adapt to changing business conditions. Several LSIBS fit this description; examples are summarized in Table 1.

Stephen et al. (2002) have previously noted the value of LSIBS in a capstone, integrative course. Building on their work, we focus on the means by which LSIBS inherently contribute to AACSB assurance of learning goals. We will first identify the goals attainable via LSIBS and then elaborate on how they are attained.

### AACSB Goals to Which LSIBS Can Contribute

In its *Eligibility Procedures and Accreditation Standards for Business Accreditation* (2009), AACSB has specified a number of desired learning outcomes for undergraduate and graduate programs. These have been further explained and illustrated in *AACSB Assurance of Learning Standards: An Interpretation* (2007). After carefully reviewing these sources and the available LSIBS, we propose the following as learning goals to which LSIBS can significantly contribute at the undergraduate and graduate levels:

- Management-specific knowledge and skills
- Creation of value
- Analytical skills
- Financial theories, analysis, reporting and markets
- Use of information technology
- Ethical understanding and reasoning
- Teamwork skills, team building, and collaborative behaviors
- Successful performance in a complex environment
- Strategic management and decision-making in an integrative environment
- Perseverance

The manner in which LSIBS can contribute to these goals is described in this section. Due to the frequent references to AACSB’s *Eligibility Procedures and Accreditation Standards for Business Accreditation* (2009), it will be convenient to refer to this document simply as, Standards.
### Table 1: Large-Scale, Integrative Business Simulations

<table>
<thead>
<tr>
<th>Simulation Name (alphabetical)</th>
<th>Brief Description and Website</th>
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<tbody>
<tr>
<td>The Business Strategy Game by GLO–BUS Software, Inc.</td>
<td>The Business Strategy Game is an online exercise in which class members are divided into teams and assigned the task of running an athletic footwear company in head-to-head competition against companies managed by other class members. Company operations parallel those of actual athletic footwear companies, competing in four geographic regions: Europe-Africa, North America, Asia-Pacific, and Latin America. Company management must make decisions relating to plant operations, distribution and warehouse operations, work-force compensation, online sales at the company’s web site, sales and marketing, and finance. The challenge is to craft and execute a competitive strategy that results in a respected brand image; keeps the company in contention for global market leadership; and produces good financial performance as measured by earnings per share, return on investment, stock price appreciation, and credit rating. <a href="http://www.bsg-online.com/">http://www.bsg-online.com/</a></td>
</tr>
<tr>
<td>Capstone Business Simulation by CapSim Management Simulations, Inc</td>
<td>In Capstone Business Simulation, students run a $100 million company for five to eight years. Students begin the simulation with five products but can develop a portfolio of up to eight products. Each simulated year, they make decisions in research and development, marketing, finance, human resources and production. Labor negotiation, advanced marketing and total-quality management modules can be added at the teacher's discretion. Both individual participation and group dynamics come into play throughout the instruction, further enhancing the experience by building on shared knowledge. Every participant works with a business coach, who critiques the management team’s performance, offers suggestions, and challenges basic assumptions. The coach guides the team through the course work and running their company. <a href="http://www.capsim.com">http://www.capsim.com</a></td>
</tr>
<tr>
<td>Glo-Bus by GLO–BUS Software, Inc.</td>
<td>GLO-BUS is an international simulation focusing on competitive business strategy. In this online exercise, teams of students run a digital camera company in head-to-head competition against companies run by other class members. Company operations parallel those of actual digital camera companies, competing in a global market arena, Europe-Africa, North America, Asia-Pacific, and Latin America. Company management must make decisions concerning R&amp;D, component usage, product performance, product-line breadth, production operations, work-force compensation, outsourcing, pricing, sales and marketing, and finance. The students’ challenge is to craft and execute a competitive strategy that results in a respected brand image, keeps the company in contention for global market leadership, and produces good financial performance as measured by earnings per share, return on investment, stock price appreciation, and credit rating. <a href="http://www.glo-bus.com">http://www.glo-bus.com</a></td>
</tr>
<tr>
<td>The Global Business Game by Innovative Learning Solutions</td>
<td>The Global Business Game is an online-delivered computerized business simulation allowing students to develop, implement and manage international business strategies. Firms can transfer their technologies and patents across economic areas while also engaging in numerous strategic alliances. GBG participants make both strategic and tactical decisions in marketing, logistics, distribution, production and quality control, and finance. Student teams face challenges in association with strategic options and tactical decisions, financial options, market information, strategic alliances and business negotiations. The business world’s human factors and ethical issues are included via a number of Critical Incidences. <a href="http://onlinegbg.com">http://onlinegbg.com</a></td>
</tr>
<tr>
<td>LINKS Enterprise Management Simulation and Supply Chain Management Simulation by Randall G Chapman</td>
<td>The LINKS Enterprise Management Simulation is a team-based, competitive-strategy simulation designed for integrative business-strategy course applications, with teams usually competing during eight simulation rounds. Participant teams typically create business plans at the simulation event’s midpoint for subsequent implementation. LINKS firms are manufacturers in the set-top box industry and engage participants in all aspects of business strategy and profitable enterprise management: strategy (market selection, differential advantage, and product-line portfolio management), analysis (of</td>
</tr>
</tbody>
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### Table 1: Large-Scale, Integrative Business Simulations

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
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<tr>
<td><strong>Marketplace, a family of integrative simulations, by Innovative Learning Solutions, Inc.</strong></td>
<td>Marketplace teams of four or five students build an entrepreneurial firm; experiment with strategies; compete with other participants in a virtual business world filled with tactical details; and struggle with business fundamentals and the interplay among marketing, manufacturing, logistics, human resources, finance, accounting, and team management. Students control an enterprise and manage its operations through several decision cycles. Repeatedly, they must analyze a situation, plan a strategy to improve it, and then execute that strategy. They face great uncertainty from the environment and their own decisions. Incrementally, the students learn to skillfully adjust their strategy as they discover the nature of real-life decisions, conflicts, tradeoffs, and potential outcomes. Company management must make decisions relating to R&amp;D as well as strategic alliances related to R&amp;D licensing and cross-licensing. Participant teams typically create business plans at the simulation’s midpoint, as a basis for pitching the company to venture capitalists (business professionals external to the College) and for subsequent implementation. In the outsourcing version, participants can become suppliers to other firms and must negotiate and secure contracts with other student teams to achieve successful supply chain management. <a href="http://www.links-simulations.com">http://www.links-simulations.com</a></td>
</tr>
<tr>
<td><strong>Mike’s Bikes-Advanced by SmartSims, Inc.</strong></td>
<td>Mike’s Bikes-Advanced is a strategic-management simulation, combining practical hands-on decision-making with real-world modeling. Students learn the key concepts of business strategy as they run their own company within an online industry, competing against other students. Through interactive interface, students examine the cross-functional disciplines of business, and how the development and implementation of strategy involves these disciplines. <a href="http://marketplace-simulation.com">http://marketplace-simulation.com</a></td>
</tr>
<tr>
<td><strong>Topsim-General Management simulation by TATA Interactive Systems GmbH</strong></td>
<td>Topsim-General Management is a multiplayer simulation in which teams of 3 to 4 players manage competing companies in a simulated market. This simulation builds teamwork and time management, and empowers learners in several ways, including: 1) learning to think and act in an entrepreneurial manner in accordance with strategic and share-value-oriented management; 2) interpreting market situations and market results and translating them into goal-oriented decisions; recognizing the interactions among the various companies and external influences in a complex and interrelated environment; 3) attaining preset goals; 4) achieving transparency in the decisions’ consequences; and 5) making decisions within the team efficiently and constructively. <a href="http://www.tatainteractive.com/topsim.html">http://www.tatainteractive.com/topsim.html</a></td>
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</table>
Management-specific Knowledge and Skills

AACSB requires that “there will be management-specific learning goals for students. These goals relate to expectations for learning accomplishment in areas that directly relate to management tasks and form the business portion of degree requirements. Such areas include traditional learning disciplines such as accounting, management science, marketing, human resources, and operations management…” (Standards, p. 62). Business graduates are commonly expected to have acquired from each of the College’s disciplines skills they can apply in a wide array of business organizations. In short, most graduates are expected to have broad knowledge of all of business disciplines.

LSIBS address this educational goal via the activities necessary to compete over multiple periods. During the early periods, teams must form a business and determine organizational structure and team leadership. They either apply their skills in starting a new business or supporting an on-going business enterprise. In either scenario, the primary goal of these early activities is to determine the best direction for the business.

Teams analyze the market intelligence, operational information, and profitability data with the goal of developing a business strategy. The students then apply knowledge reviewed during class as well as skills and abilities gained in prior coursework to prepare a set of tactical decisions. Student teams are typically expected to make all marketing, production, human resource, distribution, financial, and other tactical decisions required to manage the business.

Based on the strategic direction and tactical decisions to be pursued, teams may need to examine product design issues to meet their target customers’ needs. They may also need to build or expand infrastructure, such as supply and distribution channels. Infrastructure decisions and brand-design issues typically require students to perform cost-benefit, cost-volume-profit, and risk-reward analyses in concert with their goals and strategy. In many cases, these decision options include operational choices in various geographic areas around the globe; therefore, some multi-cultural, societal, jurisdictional and international legal issues might need to be addressed.

As the simulation progresses, student teams come face-to-face with their customers and their competitors. Inherently, much ambiguity, uncertainty, and anxiety occurs. Nevertheless, most LSIBS require tactical decisions supported by appropriate business analyses, including the following:

- Marketing planning and operational tactics
- Advertising development and media placement
- Salesperson and other employee compensation
- Employee hiring, training and compensation
- Supply channel operations and logistics
- Distribution channel operations and logistics
- Quality assessments and appropriate improvements
- Projections of cash flows, income and financial condition

During later periods, students revise, refine, and adjust their strategy and tactical decision-making to capitalize on their company’s strengths and opportunities in light of the competition. In addition to the analyses and decisions listed above, adjustments require additional analyses, such as the following:

- Analysis of market share
- SWOT analyses
- Product profitability
- Productivity of sales offices, advertising, salespersons
- Sales-distribution profitability
- Overall profitability
- Analysis of expansion opportunities
- Product assessment and redesign
When considered in total, these decisions require students to have a broad and integrative understanding of business, consistent with AACSB’s assurance of learning objectives.

Creation of Value

One of AACSB’s stated goals for undergraduate and masters programs is to give students experience in the “Creation of value through the integrated production and distribution of goods, services, and information . . .” (Standards, p. 70). At their core, LSIBS require students to determine how to create and deliver value to customers via managing the entire value chain, including most or all of the following activities: marketing, procurement, production, human resources, sales, and distribution. In addition, the value creation process typically includes origination, management, and application of marketing, operational, and financial information to efficiently manage the process, and ultimately, create wealth for its stockholders. Finally, the creation of value is not a single event, but an evolutionary endeavor with unexpected opportunities and threats that require constant adaptation to unfolding events and information.

Analytical Skills

Another stated goal of AACSB is to provide students with experience in “Statistical data analysis and management science as they support decision-making processes throughout an organization” (Standards, p.70). The data provided by most LSIBS is rich and complex. As such, students are challenged to properly prepare market research, profitability, cost-benefit, capital structure, and operational analyses in a systematic and disciplined manner or face the prospect of making erroneous or less-than-optimal decisions. The data affords students the ability to use spreadsheet tools like Excel, graphical analysis tools like Visio, statistical packages, and management-science techniques to analyze their data. While students can sometimes get away with minimal analysis, they quickly realize the value of applying more sophisticated analytical tools as the datasets become large and complex.

Financial Theories, Analysis, Reporting and Markets

AACSB expects a general management program to also deal with financial theories, analysis, reporting, and markets (Standards, p 71). In many LSIBS, students are required to apply various financial theories as they contemplate such issues as the firm’s value, their investment options, capital structure, and risk. Certain simulations also incorporate exchange rates, hedging opportunities, and financial markets to which theoretical considerations and calculations can be applied. Furthermore, all LSIBS deal with financial reporting and analysis. Various financial reports, including balance sheets, cash flows and income statements, and ad hoc analyses of the firm, lines of business, individual product lines, and territories are key inputs to SWOT analyses and often provide impetus for change in strategy and tactics.

Furthermore, LSIBS require students to understand that any venture has risks, but that those risks can be managed, provided the students examine the market and profit potential of any new products, services or other changes they are considering. A favorite saying related to analysis is “The numbers will seldom identify the optimal choice, but they will often eliminate many bad choices.” Market intelligence and profitability data are gathered to initiate such assessments.

Instructor delivery and coaching may include an overview of financial performances and goals as the basis for strategy development as well as specific market, operational, cost-benefit and cost-volume-profit analyses that facilitate sound tactical decision-making.

Use of Information Technology

AACSB expects students to have learning experiences involving information technology (Standards, p. 72). To be successful in the new millennium, students need to embrace technology-based solutions to emerging business problems and anticipate, appreciate, and utilize opportunities derived from technological change. Thus, students are expected to use computer and information technology within LSIBS for problem-solving and to perform functions commonly seen in managing businesses and other organizations.
In addition, most LSIBS are delivered via computer software or the Web. For those LSIBS housed on the Web, students do not need to be physically located in the same space; instead, they can be teamed in cyberspace. This experience will help prepare them for the virtual firm. For example, a business graduate may work out of a home in Dallas, confer with the management team in London, and coordinate shipments from the factory in Shanghai, all to service the customer in Montreal.

With LSIBS, we are finding students are fully embracing virtual teams by using chat rooms, text messaging, Twitter, Facebook, Go-to-Meeting, and YouTube as ways to communicate and work together. In many respects, industry will be following their lead.

Ethical Understanding and Reasoning

AACSB also expects students to have learning experiences that deal with ethical understanding and reasoning (Standards, p. 71). For better or worse, LSIBS tend to elicit the best and worst in some individuals and teams because their choices have real financial impact on the participants. As such, the instructors must address ethical dilemmas and assist students in evaluating ethical problems throughout the exercise.

Ethical dilemmas typically arise in several areas, such as advertising, intelligence networks, and strategic partnerships. Several LSIBS allow student teams to determine ad content whereby the more effective the ad, the more successful the company; however, most simulations do not limit the teams to truthful advertising. Also, when collecting intelligence information, it’s not only what students collect, but how they collect it and what they plan to do with it that helps determine whether the actions are ethical. Finally, because many LSIBS permit some form of strategic alliance or partnership with other competitors, many other ethical dilemmas emerge. Collectively, professors normally have a rich environment for identifying ethical dilemmas and helping students to think about proper ways to resolve these dilemmas.

Teamwork Skills and Collaborative Behaviors

Another AACSB requirement is that “The school’s programs involve collaboration and cooperation among participants in the educational process …” (Standards, p. 56). Furthermore, “Intellectual tasks in some parts of the program should require collaborative learning” (Standards, p. 57).

LSIBS include many complex activities, requiring the division of responsibility and collaboration to be successful. Typically, students work in functions related to their major and can, therefore, bring specialized knowledge to the team. In addition, their experience over a lengthy exercise creates expertise in their functional areas.

Also, the teams face considerable stress, resulting from the following: 1) teams can fail, 2) everything is interconnected, and 3) the market is dynamic as competitors adapt to each other’s tactics.

The division of labor, development of expertise, and the constant pressure to get or stay ahead forces team members to deal with each other, preferably on a professional basis. They need to work with each other to find the decision balance that will yield the highest performance. In the process, they frequently have to explain how a decision in someone else’s area will affect performance in their area. They also must listen to their teammates’ business arguments and respond in kind as everyone attempts to resolve the many issues facing the firm. The extensive discussion, debate, and sharing that occurs within the team contributes to AACSB’s goals of teamwork and collaboration.

Successful Performance in a Complex Environment

AACSB requires that “Students achieve knowledge and skills for successful performance in a complex environment requiring intellectual ability to organize work, make and communicate sound decisions, and react successfully to unanticipated events” (Standards, pp. 58-59). To this end, LSIBS are complex and require a comprehensive set of business decisions. While no simulation can replicate the real world, LSIBS
attempt to imitate the business world, providing students with a sense of its complexities and the various trade-offs required. Because LSIBS are integrative experiences, students apply their skills while recognizing that any plan of action has certain benefits, shortcomings, and risks.

For example, many LSIBS offer manufacturing opportunities from a relatively inexpensive labor pool in China or other developing nations. Students need to analyze this benefit against the risk of political and economic unrest that might plague developing economies and, therefore, profitability. In addition, due to a continuing scarcity of resources (faced by all businesses), students must choose courses of action that they have analyzed and judged likely to be most effective; such decisions inherently involve trade-offs.

All of these factors require tolerance for ambiguity and uncertainty, an important focus in personality development and education. In management, tolerance of ambiguity is thought to be correlated with success. And LSIBS emulate the world’s uncertainty. Anxiety levels typically peak in the early periods when student teams are making decisions with minimal knowledge of their customers, competitors, and even their own business. While subsequent decision-making may become more predictable, the competitive nature and increasing complexities of the simulations’ environment ensure that ambiguity and uncertainty are both commonplace and integral parts of the activity. Student teams must learn to not only analyze prior competitive actions, but also develop an intelligence network to learn as much as they can about the other executive teams and attempt to anticipate their competitors’ future moves. As one student once commented, “For a fake product and a fake company, I am certainly losing a lot of real sleep!”

Because the fundamental decisions required in a repetitive simulation remain relatively stable across several periods of play, students are required to revisit (practice) those decisions repetitively. When such repetition is combined with quick feedback on the results of their decisions, students are often able to progressively master a comparatively complex environment.

**Problem Solving**

AACSB requires that schools help to develop general knowledge and skills, including problem-solving abilities (Standards, p. 4). LSIBS help develop critical thinking skills so that graduates can address new business problems in any of the business disciplines. Because LSIBS are conducted in periods, each period brings about new challenges and opportunities. Repeatedly, student teams must analyze each aspect of their business performance because a business can maximize its value for its shareholders only when it is fully effective and efficient in all its operational phases. Therefore, student teams must not only critically analyze and evaluate their performance in each area of business, but also innovate, develop operational fixes, and formulate effective competitive responses to improve performance in subsequent periods. Also, many LSIBS provide innovation options such as research and development that require students to perform analyses, in not only a static and controlled environment, but also one in which the playing field is always changing with competitor moves and innovation.

**Strategic Management and Decision-making in an Integrative Environment**

According to AACSB, “Strategic management and decision-making in an integrative organizational environment” is expected to be part of the typical, general management degree program (Standards, p. 70). As might be inferred from the discussion above, this is one area in which LSIBS excel. In terms of integration, students must master functional details and the interplay among marketing, distribution, HR, operations, finance, and accounting.

Consistent with Stephen et al’s (2002) assessment, simulation exercises can develop management skills of students by giving them an integrated perspective of the entire business operation. In terms of specifics, the exercise can achieve the following:

- Develop strategic planning and execution skills within a rapidly changing environment.
- Crystallize the link between business decisions and financial performance.
- Instill a bottom-line focus and the simultaneous need to deliver customer value.
• Internalize the important of using market information, competitive signals, operational data, and financial information to adjust the strategic plan and more tightly focus business tactics.
• Promote better decision-making by helping students see how their decisions can affect others and the organization as a whole.

The management of strategy and decision-making is also a distinguishing feature of all simulations. To paraphrase Thomas Edison, strategy is 1% inspiration and 99% perspiration. Formulating a strategy is not enough; instead, the business graduate must skillfully execute that strategy, adapting to unforeseen problems and opportunities. In other words, the student must execute a consistent, coherent, and integrated set of business decisions over time, using all the management tools to keep the firm on course or to change course as necessitated by unfolding situations.

**Perseverance**

According to AACSB, “In-depth learning requires performance over time and continued accumulation of knowledge and skills. Short-term experiences and engagement with subject matter should not make up the whole of students’ experiences. Some program requirements should develop depth of knowledge through extensive learning over time, and students’ records should show that they have achieved deep learning in one or more areas; i.e., learning that includes an understanding of context and relationships, not just applications of methods” (Standards, p. 58).

Perseverance is essential to LSIBS. In most cases, success is not accomplished easily or quickly. For many reasons, skillful adjustment is constantly required to remain on course and to get ahead. First, customers will switch to and from competitors if sufficiently better offers are available. As a result, students must track customer satisfaction and competitive moves while continuously investing in new product development, quality, and distribution channels. Second, competitors become increasingly aggressive as they learn how to succeed in the market and, in particular, how to attack a firm’s weaknesses. Third, investors are challenging as they coldly seek the maximum return on their investment; they never seem to be satisfied with yesterday’s accomplishment. Fourth, many tactical decisions must be mastered and mistakes can be made as individuals make decisions without considering the impact on other areas of the firm. Fifth, knowing how a decision will precisely play out is impossible as the students’ knowledge of the market is imperfect and competitors can make unexpected decisions. Last, cash is always a constraint forcing tradeoffs and suboptimal decisions, which can often create new challenges later.

**An Enhanced Simulation Experience**

As highlighted above, LSIBS provide an environment within which many of the learning experiences desired by AACSB can naturally occur. LSIBS also provide a platform upon which several activities and assessment tools can be overlaid, adding to the learning achievements and contributing to a comprehensive, perhaps even a 360°, learning assessment.

In this section, we will review several activities and assessments developed at the University of Tennessee and further tested (with some modification) at West Virginia University and other American schools. These tools were developed in conjunction with the *Marketplace* simulation but can be applied to most LSIBS. Our goal in reviewing these activities and assessments is to help educators see how the simulation experience can be enhanced to greatly expand its role in achieving AACSB goals.

In terms of scale, these tactics can be applied to both small and large classes. At Tennessee, they have been employed in a second-semester, junior-level course designed to consolidate and integrate the core curriculum. Typically, 400 students are enrolled in the course, divided into 16 sections of 25 students. Each section has 5 teams composed of 5 students, and a single game is played within each section. Usually 8 instructors oversee two sections each. The instructors are typically doctoral students drawn from all of the functional areas of business, providing a good diversity across the teaching staff.
At West Virginia, an LSIBS has been used as an assurance of learning activity in the MBA, EMBA, and Masters of Professional Accountancy (MPA) Programs. This capstone activity integrates all of the students’ prior course work and life experiences. External professionals are incorporated into classroom activities, such as a venture-capital fair to enhance the learning experience. Feedback from external participants also provides immediate and direct feedback about what the students know and where improvements are needed. Each course typically has 25-40 students enrolled. Each student team is composed of 3 to 5 students. Depending on class size, one or two games are played within each course, which is overseen by one or two instructors.

To help the reader envision the totality of the learning and assessment experience, we have created a timeline depicting the typical progression through a simulation experience. We have overlaid the activities and assessments that can be used to enhance the value of a simulation as illustrated in Figure 1 on page 13.

As shown in the chart, a Startup Phase usually occurs during which students organize themselves and discover how to succeed in the simulation. As students refine their understanding of the business, many will develop a comprehensive strategy to carry them through the end of the exercise. We call this second phase the Transition Phase. The third phase, Growth, usually arrives as the teams deploy their strategy and make skillful adjustments responding to unfolding market and competitive conditions. Finally, most simulations include an Accounting Phase during which student teams report on the effectiveness of their strategy and tactics. The timing of these phases will depend upon the simulation selected, but they occur in most simulations.

Importantly, this natural progression allows a business school to overlay a number of activities designed to enhance a simulation’s value. At Tennessee and West Virginia, the following features were added to the simulation learning experience:

- The teams gave regular executive briefings to the instructor who served as the Chairperson of the Board or the “devil’s advocate.”
- The students prepared a formal business plan, which was presented and defended before outside investors.
- The business plan included a strategic vision, tactical plan, financial statements and firm valuation.
- Under the guise of a first stockholders’ meeting and as part of the accounting for their actions and results, the teams prepared a final report presented to the same outside investors.
- The leadership was rotated among all of the team members during the exercise.

All of these activities created opportunities to capture assessment information. The following tools were developed for both evaluation and feedback:

1. Rubrics for evaluating
   a. Executive briefings
   b. Business plan
   c. Stockholders’ report
2. A peer evaluation to obtain student feedback for team members. Depending on course design, it can be used one or more times at strategic points in the exercise.
3. A leadership peer evaluation to obtain student feedback for team members at the end of the exercise
4. A customized, objective assessment of the students’ understanding of their business two-thirds of the way through the exercise
5. A balanced scorecard used throughout the exercise as the overall indicator of performance.
Figure 1: Expansion of Simulation Pedagogy to Achieve AASCB Learning Goals and a 360° Assessment of Learning

**Time Line (periods)**

<table>
<thead>
<tr>
<th>P1</th>
<th>P2</th>
<th>P3</th>
<th>P4</th>
<th>P5</th>
<th>P6</th>
<th>P7</th>
<th>P8</th>
<th>P9</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Typical Life Cycle of Large Scale Simulations</strong></td>
<td><strong>Startup phase</strong></td>
<td><strong>Transition phase</strong></td>
<td><strong>Growth phase</strong></td>
<td><strong>Accountability phase</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Organize management team and learn to work together. Learn the business and formulate initial strategy. Test the market and operations. Conduct SWOT using management tools. Skillfully adjust strategy and tactics.</strong></td>
<td><strong>Conduct comprehensive SWOT. Consolidate strategy to accelerate growth and profitability.</strong></td>
<td><strong>Continually assess strategy and tactics using tools of management. Skillfully adjust in response to assessment plus unforeseen problems &amp; opportunities.</strong></td>
<td><strong>Prepare &amp; present report reflecting on accomplishments and future.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Activities Overlaid On Integrative Simulation to Enhance Learning**

<table>
<thead>
<tr>
<th>Deliverables</th>
<th>Executive Briefing with Business Coach</th>
<th>Executive Briefing with Business Coach</th>
<th>Executive Briefing with Business Coach</th>
<th>Comprehensive business plan with tactical plans and pro forma financial statements. Present plan to outside investors who review plan, ask tough questions, and negotiate equity investment</th>
<th>Executive Briefing with Business Coach</th>
<th>Executive Briefing with Business Coach</th>
<th>Stockholder report to board</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership Rotation</td>
<td>1st President</td>
<td>2nd President</td>
<td>3rd President</td>
<td>4th President</td>
<td>5th President</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Assessments Overlaid On Integrative Simulation to Enhance Learning and Achieve 360° on Learning**

<table>
<thead>
<tr>
<th>Game Performance (group)</th>
<th>Balanced Scorecard</th>
<th>Balanced Scorecard</th>
<th>Balanced Scorecard</th>
<th>Balanced Scorecard</th>
<th>Balance Scorecard</th>
<th>Cumulative Balanced Scorecard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ownership of BS (individual)</td>
<td>2 metrics</td>
<td>2 metrics</td>
<td>2 metrics</td>
<td>2 metrics</td>
<td>2 metrics</td>
<td>Cumulative BS 2 metrics</td>
</tr>
<tr>
<td>Use of Rubrics</td>
<td>Briefing (individual)</td>
<td>Briefing (individual)</td>
<td>Briefing (individual)</td>
<td>Business plan (group)</td>
<td>Briefing (individual)</td>
<td>Briefing (individual)</td>
</tr>
<tr>
<td>Objective (individual)</td>
<td>Customized, online, assessment of learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Finally, the instructor can play a number of roles in an LSIBS setting. For the executive briefings, he/she can serve as the tough chairperson of the board. When key concepts, principles, or ways of thinking are not well understood, he/she can provide mini-lectures or chalk talks, serving as both mentor and business coach. As the students prepare for their business-plan presentation and final report, the instructor can serve as a coach, helping the students focus on key issues and how to professionally tell their story. When evaluating deliverables, the instructor provides feedback. Considering these activities and roles, the instructor’s official title can be changed to Business Coach, whose primary goal is to monitor and develop the business capabilities of each student and team.

When one describes the instructor’s role as that of a Business Coach, it is important to further clarify what that term means. In a sports setting, a coach is a team member and, thus, an advocate that facilitates winning. However, LSIBS instructors need to keep the playing field level, to be objective, and not to give any team a particular advantage. The Business Coach should help teams frame the problem so that they understand how to properly think about their choices, while emphasizing that the choices are still the team’s to make and the outcomes are the team’s responsibility. Maintaining the perception of a fair playing field is critical to the integrity of both the simulation and the instructor.

As a Business Coach, the instructor also needs to help students understand that the problems they face and the way they frame them have parallels in the real world. Therefore, the students should be alerted that attacking and resolving these problems in the LSBIS setting can help them solve similar problems they are likely to face throughout their career.

In the following sections, we will review the activities and assessment tools and explain how they contribute to AACSB’s assurance of learning and assessment goals. It is noteworthy that specifying the learning goals will be in conjunction with describing each activity and assessment tool, as the two go hand-in-hand. In the normal cycle of things, one first specifies the learning goal, followed by the development of an activity to attain the goal and then an assessment tool to check its attainment. Serendipitously, the thought process that leads to these activities and tools suggests other learning goals that the method (simulation) is capable of facilitating. It also suggests the need for additional assessment tools, as one tool is not capable of assessing all goals. Therefore, one needs to cycle among learning goals, learning enhancements, and assessment tools until all three categories are sufficiently refined so that further work is not required.

**Executive Briefings**

Just before the teams complete their work for each decision period or quarter, they conduct an Executive Briefing with a Business Coach, who acts as the Chairperson of the Board and tends to play the role of devil’s advocate. During these briefings, the teams review their

1) performance during the prior quarter
2) SWOT analysis
3) strategy for current quarter and going forward
4) new or revised tactical decisions, and
5) pro forma financial projections for current quarter.

Each firm’s president organizes the Executive Briefings, and a written agenda is provided. Every student is instructed to be prepared to defend the analysis and logic behind all of the team’s decisions and plans, not just those for which the student is directly responsible.

The Executive Briefing provides an opportunity to monitor the work and thought processes of each person and team participating in the simulation. It also provides opportunities for the instructor to coach students in a meaningful context at a time when students are receptive to this coaching. As such, these briefings provide substantial opportunity for student/faculty interaction as specified by AACSB (Standards, p. 38).
The Business Coach’s role during these meetings is to challenge the students’ thinking and analysis by looking for inconsistencies and holes in logic, incompatibilities across functions, and various other problems and/or opportunities that the students might have overlooked. The Coach is instructed never to indicate the right decision to make, but to ensure that students have considered the relevant issues, options and tradeoffs related to their strategic and tactical decisions. If students do not understand a certain point, the Coach gives a mini-lecture explaining the relevant issues and options. Ultimately, however, the students have to make their own choices.

The briefing simulates staff meetings with supervisors and senior managers to train students in professional meeting preparation and management (such as setting agendas, keeping to the schedule, and transitioning speakers), thus preparing students for their professional future.

Executive briefings provide opportunities to contribute to the learning goals specified by AACSB and typically sought by both undergraduate and graduate business programs. The exercise can contribute to the following AACSB goals: instructor interaction and feedback, student involvement, reflective thinking, analytical skills, financial analysis and reporting, integration, knowledge application, communication skills and learning assessment. Table 2 on page 16 explains the manner in which these goals are attained.

Comprehensive Business Plan

At the midpoint of the exercise, the teams can be asked to prepare a Business Plan and present it to a group of independent judges, who may serve, depending upon the simulation setup, as venture capitalists, senior executives from a parent company, or the board of directors. They can be drawn from the business community, Ph.D. programs, and/or faculty.

For this comprehensive and complex assignment, the students must develop a formal strategy and think through the tactical details and cash flow requirements, including all the linkages. Importantly, students find that their work makes the rest of the simulation easier because from this point, they have a plan, and all they have to do is follow it.

Although requiring a written Business Plan is possible, we require an oral presentation for two reasons. First, the typical LSIBS requires a great deal of work and is very time consuming. To further require a written business plan would be onerous. Second, students are more likely to make presentations than to write reports; therefore, we consider professional experience in presenting and selling ideas more valuable than a written report.

Regarding the presentation itself, the team is expected to be “professional” by using an assortment of visual aids. Moreover, the details of the market analyses, strategy, tactical plans, and pro forma financial statements must be carefully explained in appropriate handouts. Finally, the students are expected to defend their plan as they respond to an assortment of far-ranging questions from “experts” in different business fields. When using a new venture scenario, the student teams participate in a Venture Capital (VC) Fair and also negotiate an equity investment in their firms.
Table 2: Contributions of Executive Briefings to Assurance of Learning

<table>
<thead>
<tr>
<th>AACSB Learning Goal</th>
<th>Means By Which The Goal Is Accomplished</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructor Interaction and Feedback</td>
<td>The instructor has frequent opportunities to interact with individual students and give immediate feedback on their performance. These interactions set the stage for helping students improve their presentation skills; their preparedness; their use of business concepts, thought processes and management tools; and their ability to concisely discuss trade-offs and defend a final decision.</td>
</tr>
<tr>
<td>(Standards, pp. 40, 41, 55, 56, 57, and 59)</td>
<td></td>
</tr>
<tr>
<td>Student Involvement and Engagement</td>
<td>Each student is assigned a role in which he or she must present the analysis and logic behind his/her conclusions, decisions, and plans for the company plus try to anticipate and deal with the Coach’s follow-up questions.</td>
</tr>
<tr>
<td>(Standards, pp. 56, 57)</td>
<td></td>
</tr>
<tr>
<td>Reflective Thinking</td>
<td>Students are expected to thoughtfully present the actions taken based upon a concise analysis of relevant market, operational and/or financial data as well as a consideration of how these decisions will impact other functional areas, costs, revenues, and the capabilities of the firm in the future. Moreover, students are asked far-ranging questions designed to probe their understanding of not only their area of responsibility but also its impact on other functional areas.</td>
</tr>
<tr>
<td>(See Standards, p. 71)</td>
<td></td>
</tr>
<tr>
<td>Analytical Skills (Standards, pp. 70, 71, 72)</td>
<td>Effective arguments require data (management by the numbers) derived from the application of management tools.</td>
</tr>
<tr>
<td>Financial Analysis and Reporting</td>
<td>Students must analyze the profitability of their firm and all of its activities, assess the potential return of major investments, and prepare pro forma financial statements based on current tactical plans.</td>
</tr>
<tr>
<td>(Standards, pp. 70, 71)</td>
<td></td>
</tr>
<tr>
<td>Integration</td>
<td>To do well, a student must demonstrate mastery of the information and decisions within his/her areas of responsibility plus integrate his/her responsibilities with the rest of the organization to maximize the firm’s total performance.</td>
</tr>
<tr>
<td>(Standards, pp. 70, 74)</td>
<td></td>
</tr>
<tr>
<td>Knowledge Application</td>
<td>To be effective, facts, analysis, and arguments must be couched in business terms, principles, and ways of thinking.</td>
</tr>
<tr>
<td>(Standards, pp. 18, 21, 74)</td>
<td></td>
</tr>
<tr>
<td>Communication Skills</td>
<td>Students must articulate a logical argument supported by relevant information and respond in a thoughtful manner to the Coach’s expected and unexpected probing.</td>
</tr>
<tr>
<td>(Standards, pp. 62, 71)</td>
<td></td>
</tr>
<tr>
<td>Assessment of Learning</td>
<td>The Instructor/Business Coach is able to monitor the thought process, analytical skills, use of management tools, and overall business acumen over an extended time period. The assessment is conducted within a highly relevant set of circumstances as the students tend to take personal responsibility for their actions and related outcomes.</td>
</tr>
<tr>
<td>(Standards, pp. 38, 72)</td>
<td></td>
</tr>
</tbody>
</table>

The preparation, delivery, and defense of the business plan are keys to attaining several important assurance of learning goals for AACSB. Taken together, the exercise can contribute to the following AACSB goals: instructor interaction and feedback, student involvement, reflective thinking, conceptual reasoning, analytical skills, financial analysis and reporting, integration, knowledge application, and communication skills. The manner in which these goals are attained is explained in Table 3 on page 17. In terms of its business-world counterpart, the activity simulates a budget-request situation wherein a business team would request to start or expand a project with supervisors or senior managers.
Table 3: Contributions of the Business Plan to Assurance of Learning

<table>
<thead>
<tr>
<th>AACSBB Learning Goal</th>
<th>Means By Which The Goal Is Accomplished</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructor Interaction and Feedback (Standards, pp. 40, 41, 55, 56, 57, and 59)</td>
<td>The business plan presentation and the detailed tactical and financial plans are submitted in advance to the Business Coach for review and feedback to help students perform at their best during the presentations.</td>
</tr>
<tr>
<td>Student Involvement and Engagement (Standards, pp. 56, 57)</td>
<td>The business-plan assignment represents a full-team activity as the students analyze past performance; think through the strategy going forward; map out the tactical and financial details of that strategy; and prepare, present and defend the plan to outside investors.</td>
</tr>
<tr>
<td>Reflective Thinking (Standards, p. 71)</td>
<td>Students are expected to thoughtfully analyze market, operational and financial data in assessing the current situation. As they map out their strategy and tactics, they must consider how each decision will impact decisions in other functional areas as well as costs, revenues, and future capabilities of the firm. During the presentation, students are asked penetrating questions as potential investors probe to understand the plan’s merits and investment opportunity as well as the team’s quality.</td>
</tr>
<tr>
<td>Conceptual Reasoning (Standards, p. 4)</td>
<td>Students must prepare, present and defend to independent judges (investors) a well thought-out business plan based on facts, analysis, sound principles, and good business logic.</td>
</tr>
<tr>
<td>Analytical Skills (Standards, pp. 70, 71, 72)</td>
<td>Effective arguments require data derived from applying management tools. Investors stress management by the numbers.</td>
</tr>
<tr>
<td>Financial Analysis &amp; Reporting (Standards, pp. 70, 71)</td>
<td>Financial projections are at the core of a successful business plan. Investors look for a tight correspondence among strategy, tactics and finances.</td>
</tr>
<tr>
<td>Integration (Standards, pp. 70, 74)</td>
<td>The exercise requires not only specifying a strategy going forward but also articulating that strategy in detailed tactical and financial plans for several planning periods into the future. The achievement of the former is only possible through the coordination of functional decisions throughout the organization.</td>
</tr>
<tr>
<td>Knowledge Application (Standards, pp. 19, 21, 75)</td>
<td>To be effective, facts, analysis, and arguments must be couched in business terms, principles, and ways of thinking.</td>
</tr>
<tr>
<td>Communication Skills (Standards, pp. 62, 71)</td>
<td>To sell their ideas to outside investors, students must present persuasive arguments based upon their business merit. They must also provide thoughtful responses to critical investor questions regarding the analysis, strategic thinking, tactical details and financial returns. Their success is dependent, in part, upon the professionalism of their demeanor, communication skills and presentation materials.</td>
</tr>
</tbody>
</table>

Stockholder Report

At the end of the exercise, there is frequently some kind of final accounting of the team’s performance. Most importantly, there is opportunity to invite back the outside evaluators to serve as key investors, the Board of Directors, or senior executives from a parent company. The stage setting may be the first shareholders’ meeting, a Board meeting, or a meeting with the “Top Brass.” Importantly, teams must look these evaluators in the eye and provide an accounting of their actions and performance in the periods since the plan was initially presented. Specifically, the teams are asked to 1) review their financial, market, operational and HR performance during the second year, 2) recap their business plan, 3) assess their business strategy and performance, and 4) evaluate their ability to compete in the future.

As part of their assessment of their business strategy and performance, the teams need to 1) compare their actions taken with the business plan, 2) discuss any departures from the business plan and their justification, 3) review significant events that affected the company and/or market, and 4) explain why they did or did not achieve their goals. The report can be concluded with a focus on reflective learning. The
students can be asked how they benefited from participating in the simulation and if any lessons were learned that could be taken into the business world.

In terms of accountability, the outside evaluators are eager to discover their return on investment and why the plan went well or badly. They can ask far-ranging questions about performance, strategy, tactics, competition, and the business logic behind all of these issues.

This final report tends to be less involved than the business plan, primarily because it does not require preparing a comprehensive strategy, detailed tactical plans, and pro forma financial statements for the future. As such, it may be valued as part of the final grade at less than half of the business plan. Nevertheless, it can contribute to the following assurance of learning goals: instructor interaction and feedback, student involvement, reflective thinking, conceptual reasoning, analytical skills, financial analysis and reporting, integration, knowledge application, and communication skills. The manner in which these goals are attained is explained in Table 4.

**Table 4: Contributions of the Stockholder Report to Assurance of Learning**

<table>
<thead>
<tr>
<th>AACSFB Learning Goal</th>
<th>Means By Which The Goal Is Accomplished</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructor Interaction and Feedback</td>
<td>The stockholder report presentation is submitted in advance to the Business Coach for review and feedback in order to help students perform at their best during the presentations.</td>
</tr>
<tr>
<td>(Standards, pp. 40, 41, 55, 56, 57, and 59)</td>
<td></td>
</tr>
<tr>
<td>Student Involvement and Engagement</td>
<td>The stockholder report event represents a full-team activity as the students review their performance during the second year, assess their strategy and tactics, explain why or why not the team was able to achieve its stated objectives, and defend their actions and analysis to the same outside people who invested in their firm based upon the students’ promises and projections.</td>
</tr>
<tr>
<td>(Standards, pp. 56, 57)</td>
<td></td>
</tr>
<tr>
<td>Reflective Thinking</td>
<td>Students analyze their past performance, rethink the rationale for their tactical choices, analyze the causes for their better or weaker than expected performance (what went right or wrong with their strategy and tactics), and reflect on the lessons that can be carried into the business world. During the presentations, students are asked penetrating questions as the investors probe to understand the merits of the team’s actions and rationale.</td>
</tr>
<tr>
<td>(Standards, p. 71)</td>
<td></td>
</tr>
<tr>
<td>Conceptual Reasoning</td>
<td>Students must prepare, present and defend a well thought-out report to independent judges (stockholders) that is based upon facts, analysis, sound principles, and good business logic.</td>
</tr>
<tr>
<td>(Standards, p. 4)</td>
<td></td>
</tr>
<tr>
<td>Analytical Skills</td>
<td>Effective arguments require data derived from the application of the tools of management. Stockholders stress management by the numbers.</td>
</tr>
<tr>
<td>(Standards, pp. 70, 71, 72)</td>
<td></td>
</tr>
<tr>
<td>Financial Analysis and Reporting</td>
<td>Financial reports and analysis are at the core of a successful stockholders report. Investors look for a thoughtful analysis of the firm’s historical performance and how the firm’s strategy, tactics, and financing affected that performance.</td>
</tr>
<tr>
<td>(Standards, pp. 70, 71)</td>
<td></td>
</tr>
<tr>
<td>Integration</td>
<td>The final report emphasizes a seamless analysis of performance, strategy and tactics. Business functions are less important than the holistic perspective of how the firm was managed and how all of the decisions were integrated to achieve superior performance.</td>
</tr>
<tr>
<td>(Standards, pp. 70, 74)</td>
<td></td>
</tr>
<tr>
<td>Knowledge Application</td>
<td>To be effective, facts, analysis, and arguments must be couched in business terms, principles, and ways of thinking.</td>
</tr>
<tr>
<td>(Standards, pp. 18, 21, 76)</td>
<td></td>
</tr>
<tr>
<td>Communication Skills</td>
<td>Students must present persuasive arguments to sell their analysis and assessment to the stockholders based upon their business merit. They must also provide thoughtful responses to critical investor questions regarding the analysis, strategic thinking, tactical details and financial returns. Their success is dependent, in part, upon the professionalism of their demeanor, communication skills and presentation materials.</td>
</tr>
<tr>
<td>(Standards, pp. 62, 71)</td>
<td></td>
</tr>
</tbody>
</table>
**Rotation of Leadership**

One of the goals of AACSB is to develop the “Capacity to lead in organizational situations” (Standards, p 74). Although this goal is targeted towards master’s level students, it can also apply to undergraduates.

In the normal course of team-based projects, natural leaders tend to emerge and take a dominant role in managing the work. Without intervention, other team members are left in a follower role. In developing leadership and teamwork skills, everyone needs to obtain experience in being both a leader and a supporter (follower). To achieve this objective, the role of leadership can be rotated throughout the exercise.

In the Tennessee program, students prepare themselves for their leadership role by reading and discussing literature on leadership and teamwork. They also respond to a survey about what they think are the characteristics of a leader, which are then shared with the entire class. The survey is also used as the basis for a peer-leadership feedback survey at the end of the exercise.

With almost any LSIBS, the president’s position can be rotated among the team members as the company goes through each phase. The first president can help form and organize the management team (Period 1), including the selection of team members and deliberations regarding team norms, decision-making processes and roles. The second can organize the actual startup of the firm (Periods 2 to 4), including preparing and implementing the initial strategy. The third can oversee the preparation of the business plan and its presentation to the outside investors (Period 5). The fourth can manage implementing the business plan (Periods 6 to 8). The fifth can organize the final presentation to the Board of Directors (Period 9). If there are fewer people, some of these responsibilities can be merged.

The rotation of leadership can contribute to the following assurance of learning goals: leadership development, student involvement and engagement, communication skills and teamwork, and collaborative behaviors. The manner in which these goals are attained is explained in Table 5.

**Table 5: Contributions of Leadership Rotation to Assurance of Learning**

<table>
<thead>
<tr>
<th>AACSB Learning Goal</th>
<th>Means By Which The Goal Is Accomplished</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership Development</td>
<td>The assignment of a leadership role forces the reluctant student to shoulder some leadership responsibility in a business context. The students must deal with such issues as working with diversity, organization of work, decision-making processes, conflict management, and occasionally performance appraisal and team culture. The team serves as a living case study within which the students can explore and develop their personal style of leadership.</td>
</tr>
<tr>
<td>Student Involvement and Engagement</td>
<td>Being assigned the leadership role forces the students to become engaged in team activities and firm management. Both the Business Coach and the team will turn to the designated leader to organize work, presentations, and debates within the team.</td>
</tr>
<tr>
<td>Communication Skills</td>
<td>Designated leaders need to listen and thoughtfully respond to a myriad of ideas, suggestions, demands, constraints, and persuasive arguments. The requirements go beyond interpersonal skills in that the president must help to lead the firm in the chosen direction.</td>
</tr>
<tr>
<td>Teamwork and Collaborative Behaviors</td>
<td>The designated leader has little actual authority or power to lead the team. The extent to which the team follows the “leader” reflects the team’s conclusion that this person has shown the ability to work within the team to find reasoned and collaborative solutions for the many problems and opportunities that it faces.</td>
</tr>
</tbody>
</table>
Assessment Tools

While LSIBS and the value-added activities described above can contribute to a wide variety of learning goals, our work is not finished. As AACSB has stated, “The definition of learning goals is the first step toward the development of a program of assurance of learning. This first step answers the question, ‘Assurance of learning of what?’ Once this first step has been completed, the faculty can begin its work on the final question of an assurance of learning program, ‘How do we demonstrate that we are accomplishing our learning goals?’” (Standards, p. 64)

Assessments embedded within a course can be used to help answer this question. According to AACSB, “Required courses may expose students to systematic learning experiences designed to produce graduates with the particular knowledge or abilities specified in the school's learning goals. In such cases, the school can establish assessments within the required courses for those learning goals” (Standards, p. 65). In addition, refer to Interpretation, p. 9.

In this light, we can use LSIBS and the courses in which they are conducted as platforms for 1) the delivery of curriculum-relevant learning, 2) the assessment of learning associated with that course, and 3) the assessment of learning related to the broader curriculum. Towards these ends, a number of course-embedded assessment tools have been developed and tested for LSIBS.

In general, assurance of learning assessment methods fall into two categories: team- and individual-based tools. Team-based assessments are useful for overall curriculum outcomes. However, they are not sufficient for assessing individual student outcomes (Interpretation, p. 15). Therefore, separate tools for the team and the individual were created. They include the following:

Team Assessment

Rubric to evaluate the Business Plan teams present to outside evaluators midway through the exercise
Rubric to evaluate the Tactical and Financial Plans underlying the Business Plan
Rubric to evaluate the Stockholders’ Report teams present to outside evaluators at the end of the exercise
Balanced Scorecard to evaluate a team’s performance overall and within each business function

Individual Student Assessment:

Rubric to evaluate each student’s business acumen as evidenced during weekly Executive Briefings with the instructor
Student ownership of two performance criteria within the Balanced Scorecard
Peer Evaluation assessing each student’s teamwork and interpersonal skills
Leadership Evaluation providing feedback to the student regarding his/her leadership traits and behaviors exhibited during the exercise
Objective assessment evaluating each student’s 1) integrative understanding of business,
2) understanding and use of management tools, and 3) ability to align the firm’s strategy and tactics with market conditions

While these assessment tools were being developed, we kept the following questions in mind as we sought to close the loop between assessment and learning objectives:

The educator’s skillful adjustment: Can the knowledge gained in an assessment be used to dynamically adjust the learning process, elevating the learning outcome?

The students’ skillful adjustment: Can the assessment provide meaningful feedback to students so that they can adjust their efforts to master the subject matter?
The program administrator’s skillful adjustment: Can the assessment, combined with other tools, give educators a better indication of program success?

Note that individual level assessments are generally more beneficial for student grading but can be used to identify systematic deficiencies where an unexpected number of students appear to need additional development regarding particular skills or abilities.

In this section, we discuss how each assessment tool captures a different aspect of learning. We also note those situations in which the assessment tool can contribute to learning goals. In the end, certain tools can serve multiple purposes. In terms of order, we will start by reviewing the use of the rubrics for both team and individual assessment, then discuss the peer and leadership evaluations, and conclude with a discussion of the balanced scorecard and an online objective assessment. But first, we will discuss the role of the Business Coach as an assessment tool.

**Business Coach as an Assessment Tool**

As discussed earlier, the instructor acts as an independent, objective Business Coach, spending countless hours working with individuals and teams during class time, via phone calls, and through email, addressing a myriad of business, teamwork, leadership and professionalism issues. The Business Coach has intimate knowledge of student and team skills, especially when an LSIBS is used as a capstone experience. If assigned the responsibility to assist with assurance of learning activities, the instructor as Business Coach is in a perfect position to provide meaningful feedback. The important issue is that the instructor completes the assurance of learning feedback loop at two levels. First, the instructor can alter his/her own course content as needed. Second, he/she can inform curriculum leaders regarding situations in which student learning appears to be inconsistent with program goals and objectives, enabling the leadership to skillfully adjust the curriculum.

The following rubrics were developed in response to the need to complete a thorough assessment but also to address a practical issue. At the University of Tennessee’s undergraduate level, a course coordinator was given responsibility for 400 students and 8 graduate student instructors spread over 16 sections or 16 individual simulations. For uniform course delivery as well as student grading (assessment), the course coordinator needed a formal structure to accomplish the goals of uniform quality and grading. In programs where instructors are responsible for 1 or 2 simulations, the instructional setting’s intimacy is such that the assessment rubrics discussed below may be unnecessary.

Rubrics can be used to formally assess students and teams for grading purposes as well to systematically provide information for course and curriculum assurance of learning. Yet, no matter how formal the assurance of learning process is, it is still a qualitative assessment on the part of the instructor and is somewhat subjective. The following rubrics, when incorporated into the LSBIS course, might give the appearance that the assessments are quantitative because the qualitative, subjective assessments are assigned a numerical value. Course instructors and programmatic leadership, however, must remember that these assessments are, in fact, qualitative and that courses and programs must be appropriately adjusted when deficiencies are perceived.

**Rubrics**

The executive briefings, business plan, and stockholders’ report provide significant opportunities to observe learning and provide meaningful feedback to students. Furthermore, they afford the instructor the opportunity to systematically capture what was learned or needs to be better understood. Although not quantitative per se, rubrics identifying the business skill to be assessed provide the assessment exercise a level of discipline.
What is a rubric? According to Andrade (2009),

A rubric is a scoring tool that lists the criteria for a piece of work or “what counts.”
A rubric for a multimedia project lists items students must include to receive a certain score or rating.
Rubrics specify the performance level expected for several levels of quality.
Rubrics can help students and teachers define "quality,"
Rubrics can help students judge and revise their own work before submitting assignments.

As noted previously, to accompany the LSIBS, rubrics were created for assessing the following: 1) the executive briefing, 2) the business plan, 3) the tactical plan and related pro forma financial statements, and 4) the final report.

The rubric for the executive briefing focuses on the student’s ability to thoughtfully present actions based on a concise analysis of relevant market, operational, and/or financial data as well as a consideration of how these decisions will impact other functional areas, costs, revenues, and the firm’s future capabilities. We also try to judge if the student presents his/her tactical decisions in light of the overall strategy, including consideration of alternative courses of action, potential outcomes (forethought), integration of other functions, and contingencies. Finally, we determine if the student can think on his/her feet and respond to questions and challenges in a thoughtful, confident manner.

The business-plan rubric contains thirteen dimensions. Topics include such factors as quality of the situational analysis, strength of the team’s strategy, and level of risk and return from a potential investment in the firm. In terms of presentation skills, teams are evaluated in terms of the following: business acumen, logic of the arguments, use of data to support conclusions, plans and projected outcomes, teamwork, professionalism, and quality of presentation materials.

The rubric for the tactical plan and pro forma financial statements focus on eight dimensions. In general, the goal is to evaluate the tactical details of the firm’s strategy in each functional area and how these details are translated into a set of pro forma financial statements.

The rubric for the final report contains thirteen dimensions. Evaluators are asked to assess the team’s performance during the second year in business, the assessment of the firm’s current situation (SWOT and competitor analyses), how well the team executed its strategy and responded to unforeseen circumstances, and the presentation’s professionalism. The team members also reflect on the lessons learned and what they can take from the experience to their future career in business.

From our experience, rubrics help with the assurance of learning in many ways, including the following:

First, they provide better defined expectations and requirements for students. As such, they enable the students to prepare and conduct themselves in a more professional fashion. Even when the Standards are set very high, the rubric’s guidance enables students to rise to the occasion.

Second, rubrics are easier to execute than detailed written feedback. The key is to have comprehensive rubrics so that all relevant criteria and performance levels are identified. Once structure and content are well understood, an assessment can be performed quickly. Rubrics are very helpful if an instructor or outside expert is listening to many presentations and has only a short time to do an evaluation between each presentation.

Third, rubrics encourage uniform grading across multiple evaluators. If the evaluators come from different disciplines, both inside and outside the university, each will apply Standards based upon his/her own experience and training. The systematic format of the rubric tends to reduce unwanted variance based upon the evaluator’s background. This format is especially helpful when a course contains many sections with many different instructors.

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Fourth, rubrics provide clear feedback to the students so they can make skillful adjustments to their future work. With repetitive application of the rubrics for executive briefings and presentations, the students quickly adjust the content and delivery of the information provided.

Fifth, with a large number of students and teams, patterns can be discerned as to what the students understand or are capable of doing. One can quickly see which performance dimensions consistently receive low scores. This information can help the course coordinator and curriculum managers adjust the content and pedagogy of lectures, readings, and courses.

Collectively, these rubrics facilitate attaining the AACSB objective of “performance to standards” (Standards, p. 58). They help clarify for both faculty and students those activities and thought processes necessary to be successful in the program and provide an evaluation mechanism allowing the school to document the degree to which these standards have been met.

For additional discussion of rubrics’ effectiveness in assessment, see Swan, Shen and Hiltz (2006), Nitko (2001), Mertler (2001), and Hafner (2003).

**Peer Evaluation**

With one of AACSB’s goals being to encourage teamwork, interpersonal skills, and collaborative learning, an assessment tool must determine how well these behaviors are evident in a team-based exercise, such as an LSIBS. As most instructors realize, seeing clearly what is happening within the team is difficult. While possibly discerning some of these behaviors during executive briefings and one-on-one meetings, the instructor is still largely in the dark. Ultimately, the team is in the best position to assess its members’ contributions. For this reason, many team-based projects rely on peer evaluations for feedback to the team members and performance evaluation by the instructor. The merits of these peer evaluations have been extensively discussed in the literature. See for example, (Falchikov (1995), Gueldenzoph and May (2002), Cederblom and Lounsbury (2006), Dochy, Segers and Sluijsmans (1999), (Peer Assessment Between Students in Colleges and Universities, Keith Topping, Review of Educational Research, Vol. 68, No. 3, 249-276 (1998). Our focus is on how a peer-evaluation system can be used as part of the assessment and feedback process with LSIBS.

Regarding typical LSIBS, we have discovered that three peer evaluations work well: at the end of the startup phase, after the strategic planning phase and at the end of the course (after the combined growth and accounting phases). Each of these periods represents approximately equal portions of the semester’s workload.

The timing of the first peer evaluation allows the teams to settle into their roles; discover how to work together; and largely progress through the forming, storming, and norming phases of the team life cycle. If a team member is not pulling his or her weight, causing other team members unnecessary stress, or otherwise not making a contribution, knowing at this stage is helpful so that corrective action can be initiated. The second peer evaluation follows an extremely stressful and intensive work period while the students prepare and deliver their business plan to outside evaluators. Several teams will enter or re-enter the storming phase.

Following the business-plan work, most teams are in the performing phase of the team lifecycle. They have a good understanding of their business and market, an agreed-upon strategy, a tactical plan mapping their decisions to the end of the exercise, and a comparatively modest work load as they continuously evaluate their business performance and skillfully adjust their tactics from business period to business period. The results of the third peer evaluation tend to reflect this upbeat phase of the simulation.

In terms of content, the first two peer evaluations focus on the types of behaviors that we either encourage or discourage. Through the questionnaire, we help shape our expectations of the students as they work in teams. Specifically, we want to know 1) how effective each person was in doing his/her work and to what degree the individual contributed to the overall performance of the team; 2) how professional and supportive each person was in working with the student completing the peer evaluation; 3) how often each
person was proactive in resolving problems, finding new solutions, and helping teammates; and 4) how often the teammate displayed behaviors disrupting or limiting the team’s effectiveness. Clearly, other peer evaluations are suitable, but these questions are consistent with our learning objectives.

The questionnaire can be administered electronically or on paper. The goal is to have the results available in time for the next executive briefing, should the instructor need to intervene.

Our experience has been that students tend to be fairly candid for the first peer evaluation, which is especially helpful in identifying outliers on the low end, some requiring the Business Coach’s intervention. Serious-minded students that are marked down for some of their underperforming or unhelpful behaviors tend to adjust and avoid these behaviors. On the positive side, all students seem to be more conscious of what they can do to help their teammates and to do their own work well.

We typically see an improvement from the first to the second peer evaluation for most students that were marked down on the first one. A few students continue to be problematic, and some of these are fired by the teams and must complete the exercise on their own. The firing process is stated in the syllabus and follows the typical professional process found in business. It starts with a written notification to the team member in terms of his/her deficiencies. The student is then given an opportunity to correct the situation. If there is insufficient adjustment, the student can be fired. Very few students are actually fired because most make sufficient adjustments.

By the time of the third peer evaluation, the scores tend to be very good, either because the students 1) have in fact adjusted in a positive way, 2) are feeling good about their improved performance as they follow a well-thought out plan, 3) are just happy to see the end of the semester, or 4) want to avoid personal problems and their repercussions. For this reason, we have reduced the work and interpersonal parts of the peer evaluation and shifted the third peer evaluation to focus on leadership feedback. The reduced set of performance criteria is sufficient to note the poorer performing students and use this information to adjust a student’s grade.

Returning to AACSB’s goals, peer evaluations focus the students’ attention on teamwork skills, team building, collaborative behaviors and group and individual dynamics (Standards, pp. 56, 57, 58, 68). These evaluations provide the students feedback so they can dynamically adjust their behaviors to be more effective and helpful team members. Finally, they provide the instructor feedback on how well the teams are working together and sufficient tactical information to deal with individuals not making a positive contribution to the team.

**Leadership Evaluation**

At the master’s level, one of AACSB’s goals is to develop the students’ “Capacity to lead in organizational situations” (Standards, p. 74). This goal can also be applied to undergraduate students. Towards this end, everyone is asked to assume the responsibility of managing the team and to serve for a time as the company’s president. As noted above, the president’s job is to manage the schedules and meetings, oversee the assignment of tasks, monitor overall performance (balanced scorecard), and help the team in every way possible to performance strongly.

The third Peer Evaluation primarily focuses on leadership. Each student is asked to judge the leadership ability of each person on the team and of themselves. The leadership questions primarily serve as feedback to the team members; they are not used to adjust anyone’s grade.

The instructions to students note that leadership can arise on many occasions, not just when a person is assigned the leadership spot. In fact, during these other times, true leadership can shine. Therefore, students are asked to reflect on everyone’s leadership throughout the exercise.

While many leadership scales can be used for leadership evaluation, the one we devised at Tennessee is divided into five parts. Part 1 asks the students to indicate how often each person on the team engaged in activities typical of leaders. We want to give the students feedback on how often their teammates thought they were doing what leaders are often credited for doing.
Part II of the questionnaire asks students to indicate the degree to which each member of the team fits a list of adjectives that might be considered characteristic of a leader. This list is from common descriptors used by leading authors writing on leadership in business and covers a wide spectrum of leadership traits. The students are exposed to this scale during an early class on leadership and teamwork and are asked to indicate the degree to which each adjective is characteristic of a leader. As a result, they have been sensitized to look for these traits in themselves and their teammates.

Part III of the leadership evaluation asks students to rank the other members of the team in terms of the leadership that each had demonstrated during the exercise. The ordering is a forced-choice question to push the students to identify which team member exhibited the most down to the least leadership. Whereas the questions in Parts I and II could yield similar ratings for various team members, this question indicates to the person being evaluated how highly he or she was regarded as a leader relative to the teammates.

Part IV is an open-ended question asking the evaluator to list five qualities that best describe each team member’s character, style and spirit of leadership. This question focuses on the positive aspects of leadership that each person demonstrated, highlighting each person’s strengths.

Part V is a summary version of the prior peer evaluations, and the evaluators focus on how well each person has worked since presenting the business plan to the investors. This part is used for grading as well as feedback.

In terms of AACSB requirements, the leadership evaluation is designed to provide feedback to the students so they can adjust how they work with others as they go forward in their career. It is also intended to signal to students the importance of leadership during the course. As feedback to the instructor, it provides additional insight into why certain people are considered leaders on the team. The forced-ranking is especially informative. Not infrequently, we find that the person the Coach thinks is the top leader is not necessarily picked by the team members. The Coaches tends to focus on those students that are the most articulate during executive briefings and presentations. While important, other factors seem to make a difference in the simulated firm’s daily operations.

Over time, the leadership evaluation can also provide feedback to curriculum managers. Trend lines can be established to ascertain how well certain skills, behaviors, and attitudes are being reported by the students. This information can help managers target what to improve or reinforce throughout the curriculum.

**Balanced Scorecard**

For some time, businesses have been using a critical tool to help measure performance across a myriad of dimensions and functional areas of the firm. This tool, which has been labeled a balanced scorecard (BSC) (Kaplan and Norton 1992), allows managers to take a more holistic view of the business (Atwater, Kannan and Stephens 2008). Ultimately, the BSC leads to better decision-making via the chance to assess the decisions’ impact on all aspects of the firm, as opposed to optimizing certain areas to the detriment of others.

While a balanced scorecard and similar tools have proven invaluable for managers in the field (Kaplan and Norton 2005), they also hold great promise for assessing students engaged in an LSIBS. In fact, most, if not all, LSIBS employ a balanced scorecard in some form. Typically, the balanced scorecard is used to evaluate a team’s overall performance based upon achievements within each business function. The objective criteria specific to the Marketplace simulation include measures of financial performance, market performance, marketing effectiveness, investments in the future, asset management, manufacturing productivity, creation of wealth, human resource management, and financial risk.

While standardized scorecards are often provided, formulating one’s own scorecard is possible. For example, in West Virginia’s accounting program, the instructors place more emphasis on profitability and liquidity. As a result, their balanced scorecard includes criteria that attempt to balance recent performance with how well the company is positioned for the future and include profitability measures, financial
condition measures, customers’ perceptions, productivity and efficiency measures, and investments in the company’s future (e.g., locations, size, R&D).

Regardless of how the BSC is formulated, success in each area requires a solid understanding of how functional decisions affect performance in both related and unrelated areas. Therefore, the scores provide a good indication of how well the students manage each functional area and the firm as a whole.

**Balanced Scorecard Administration.** The BSC is presented at the start of each new decision period based on the previous period’s results. Each team receives both an overall performance score and detailed scores on individual performance criteria. They also receive comparative numbers for the competition to facilitate benchmarking. Delving into the underlying calculations for each metric is possible to discover the root causes of any performance shortfalls.

In addition to the quarterly report, a cumulative balanced scorecard (CBS) can also be derived from each performance metric’s moving average for a set of prior periods. The advantage of the CBS is that it averages spikes or dips in performance over time. As a result, a cumulative scorecard is recommended for grading.

**Assessment and Learning Outcomes.** In terms of AACSB goals, the BSC’s major learning outcomes are knowledge application and integration because the BSC is particularly effective at assessing knowledge application and integration. This circular linkage between measurement and outcome reflects the old adage, “What Gets Measured, Gets Managed.” The companion adage is, “If you want it measured, reward it.” For related thinking, see Atwater, Kannan and Stephens (2008), Bryant, Jones and Widener (2004), Dilla and Steinbart (2005), and Kaplan and Norton (1992, 2005).

Let us elaborate. At both the University of Tennessee and West Virginia University, a BSC is the primary performance measure in the simulation. As a result, students expend a considerable amount of time, effort, and intellectual capital managing their business to perform better in it. First, they must understand how their decisions affect their scores. In other words, which decisions affect which metrics? Next, they must learn to manage these decisions to improve performance. This activity is not straightforward because many of the decisions are interconnected, resulting in performance tradeoffs that must also be managed.

Importantly, the scorecard’s metrics are founded upon basic concepts, principles, and ways of thinking plus data derived from common tools of management for each functional area. Students need to apply this knowledge and data to better understand their current situation and how to improve it. Implicitly, the scores on the balanced scorecard measure how well the students apply their knowledge over time. Because the balanced scorecard is generated after each decision period, the instructor and students can ascertain how well they are doing so that corrective action can be taken.

By definition, balanced scorecards are tools used to assess performance holistically. This multi-functional monitoring tool is critical for assessing the students’ ability to think about all aspects of running a business as opposed to a limited functional view of the firm. Although students can take responsibility for different aspects of the balanced scorecard, the whole team is responsible for the entire scorecard. Therefore, each individual needs to know how the firm is performing in each functional area. More importantly, each needs to know the tradeoffs among functional responsibilities so that total performance can be maximized. In short, the balanced scorecards force students to take a balanced perspective and to think multi-dimensionally. Students excelling in integrative thinking produce above-average scores on the balanced scorecard, making it an effective integrative-thinking assessment tool.

In addition to assessing knowledge application and integration, the BSC also addresses the “creation of value through the integrated production and distribution of goods, services, and information” (Standards, p. 70). This is critical, given the inherent trade-offs associated with value creation for the customer versus employees versus stockholders. For example, a management team may be highly adept at creating value for the customer by providing products with high quality, high service, and below-average prices; yet these conditions could yield little or no return to the investors or employees. Conversely, the management team may focus on delivering the highest current ROI to investors without adequately considering the long-term
viability of the firm as measured by investments in employees, operations, research and development, etc. By using a balanced scorecard, it is readily apparent whether student managers have sacrificed high levels of customer satisfaction for the firm’s financial performance, employee morale, or investments in the future. Ultimately, business students must learn that these trade-offs exist and, more importantly, how to manage the firm so that value is created for all parties. Including several measures of performance, the balanced scorecard provides the opportunity to assess value creation multi-dimensionally.

A final benefit of the BSC is that it supports collaborative learning. As noted before, the complexity of LSIBS encourages division of labor and specialization by function. Furthermore, the interconnectivity of the functions requires that students understand how their decisions and those of their teammates affect the areas of the BSC for which they are responsible. As a result, they need to work with each other to find the balance in their decision-making that will yield the highest overall performance.

**Ownership of the BSC.** The BSC is primarily a team-based metric for assessment. AACSB also seeks individual-level assessment tools. Towards this end, the responsibility for various metrics can be assigned to team members to measure how well each individual does within selected areas of business. That is, each student can be asked to take ownership of two or more of the performance criteria that make up the total score. This responsibility can be aligned with an individual’s primary and secondary areas of responsibility. Part of each person’s evaluation is then determined by how well the firm does in the selected areas of responsibility. Comparisons can be made among individuals in different companies that have assumed similar responsibilities.

In many cases, the students tackle functional responsibilities within a simulation that align with their major field of study within business. In other cases, students must take on less familiar areas of responsibility because of an imbalance between functional responsibilities and students with those specialties. By comparing functional scores among students with related and unrelated majors, it is possible to see the degree to which specialized training contributes to performance on a student management team. In other words, do finance majors perform better when they are responsible for the financial metrics than marketing majors handling the financials?

Of course, there is one caveat to this comparison: a team may purposely choose to underperform in one area of the BSC to perform better in another area and, thus, achieve a higher overall BSC. For this reason, the ownership of the BSC performance criteria is given less weight in the students’ grades than the team-based weight for the entire BSC. We want students to appreciate the nuances of working to achieve what is best for the firm versus what is best for the individual.

**Completing the Loop on Assurance of Learning.** Although alluded to on multiple occasions, it is important to re-iterate that the BSC provides an important feedback loop for assurance of learning. Using objective data, students can monitor their performance, delve into the causes of shortfalls and successes, and adjust strategy and tactics accordingly for all aspects of the firm. If they do not understand how to make certain business decisions or how the decision options affect their performance or the other team members’ ability to make good decisions, they can seek information sources such as teammates, instructor, help files, and textbooks to fill in the gaps. Through self-monitoring, most students skillfully adjust their knowledge and decision-making over time to improve performance.

The instructor can also use the BSC for troubleshooting and teaching. For example, if a team is having trouble with marketing effectiveness, the instructor can determine which aspect of marketing effectiveness is the root of the problem. From this analysis, the instructor can spend time coaching the students to ensure they understand the basic concepts and how these concepts are applied in practice.

If an instructor discovers that some problems are common to the entire class, then adjustments can be made to the class and even to the curriculum. For example, students often have difficulty forecasting demand and managing production operations in light of their forecasts. Lectures on these topics can be added at the appropriate times in the course, and instructors in prior marketing and operations courses can be encouraged to include additional material on forecasting and production scheduling.
Customized Online Assessment

The balanced scorecard can be very useful in assessing knowledge application and integration in a realistic business situation. The inherent disadvantage of the BSC is that it is primarily a team-based assessment tool. To better assess what individual students engaged in an LSIBS are thinking, additional objective measures are needed. A review of the literature indicated that reflective and critical thinking has been cited as major goals of academic programs (Moskal, Ellis, and Keon 2008). They have also been recommended as assessment objectives within the AACSB assurance of learning guidelines (Martel and Calderon 2005). In addition, review Standards, p. 71 and p. 15, respectively. Given the nature of LSIBS, LSIBS might be helpful in assessing reflective and critical thinking in an applied business setting. At the most fundamental level, can students apply what they have learned in the classroom in a simulated business setting? Can they make sense of the information available via the management tools available within most LSIBS (Schwandt 2008)?

Development of the Customized Online Assessment Tool. The Customized Online Assessment tool was created specifically for the Marketplace simulation. However, the design principles and benefits can be applied to any LSIBS.

To begin the development of this reflective and critical thinking assessment, we turned to the human factor and cognition literature to provide a theoretical foundation for the assessment tool. Based on this literary search, Endsley’s (1988, 1992, 1995) work on situational awareness provided a theoretical framework for developing an efficient assessment tool. Situational Awareness (SA) is defined as the ability to perceive elements within the environment (level 1), to comprehend the meaning of these elements (level 2), and to project the status of these elements in the future (level 3) (Endsley 1988). These levels correspond well with the dimensions of critical thinking, reflective thinking and analytical skills that are desired AACSB learning outcomes.

As a means of measuring SA, Endsley argued for assessing all three components or levels of SA. As suggested by the literature, multiple methods are available for assessing SA; however, Endsley found that simulations were especially appropriate in highly dynamic situations. Specifically, Endsley developed an assessment approach that could be used in conjunction with flight simulators in the airline industry. With Endsley’s methodology (1995), flight personnel stepped into an aviation simulation requiring multiple decision-making opportunities. At one or more points during the exercise, the simulation was frozen, and subjects were asked a battery of questions related to the three levels of SA. Their responses were compared to some objective truth, and the absolute percent correct across all questions was calculated as a measure of SA.

Given the intuitive validity and objectivity of this method of assessing situational awareness, we began the process of developing a similar tool to be used with the Marketplace simulation. We believe this methodology can be used with any of the LSIBS.

The first step in this development process was to interview instructors using LSIBS and students participating in them. From these interviews, a pool of 90 questions was created and pre-tested at University of Tennessee and West Virginia University, as well as at 7 other US schools. Next, each of the 90 questions was categorized based on functional area and corresponding level of situational awareness. After slight refinements were made to the questions to ensure adequate coverage of all functional areas and SA levels, the pool was submitted to programmers to be developed into an online, customized assessment tool. The objective was to create a delivery system allowing customized assessment for each student’s game. Therefore, the answer choices are populated with choices specific to a student’s game and firm. For example, when asked which company has the highest market share in the industry (a level 1 perception question), the choices include company names from the corresponding industry. When asked to identify the brand that makes the largest contribution to the profitability of their firm, students are given a list of the firm’s brands on the market.
The performance of each question was evaluated using p-indices, point-biserial correlations, predictive validity and dichotomous variable factor analysis. These evaluation procedures yielded a final battery of 70 questions which tap into all three levels of SA as proposed by Endsley (1995) across all relevant functional areas within the business simulation. For reporting purposes, these final 70 questions were again coded to reflect the corresponding functional area and level of situational awareness. Examples of the questions can be found in Table 6.

Table 6: Sample Questions Relating Situational Awareness to Functional Content

<table>
<thead>
<tr>
<th>Situational Awareness Level</th>
<th>Functional Focus</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1: Perception</td>
<td>Manufacturing</td>
<td>Which firm had the lowest average production cost across all brands?</td>
</tr>
<tr>
<td></td>
<td>Accounting/Finance</td>
<td>Which market region contributed the most to the firm’s bottom-line profitability?</td>
</tr>
<tr>
<td>Level 2: Comprehension</td>
<td>Marketing</td>
<td>Our ability to compete on price was a (strength or weakness)?</td>
</tr>
<tr>
<td></td>
<td>Accounting/Finance</td>
<td>Was the brand which generated the most demand also the most profitable?</td>
</tr>
<tr>
<td>Level 3: Projection</td>
<td>Marketing</td>
<td>Our ability to compete on price will be a (strength or weakness)?</td>
</tr>
<tr>
<td></td>
<td>Manufacturing</td>
<td>Which firm will have the greatest fixed capacity in Q6?</td>
</tr>
</tbody>
</table>

Online Assessment Administration. The administration of the online assessment is a multi-step process. First, the assessment is scheduled near the end of one of the later decision periods (typically the 6th or 7th period). A later period is thought to be better because 1) students have completed a comprehensive analysis of their business and market as part of their business plan preparation, 2) they have a business plan they are following, and 3) their focus is on making marginal adjustments to their tactics as they work to achieve their business goals. Moreover, they are encouraged throughout the second year to use the various management tools to look for strengths, weaknesses, opportunities, and threats and then to act upon them. Also, knowledge of their business, competition, and market is probably at its peak; they are no longer distracted by the new software, business environment, and team. They have achieved a steady state within their business setting.

Positioning the assessment near the period’s wrap-up point also improves the probability that students have 1) used the tools of management to conduct their analysis and draw their SWOT conclusions; 2) discussed the available strategic and tactical options with their team members; and 3) acted on their analysis, conclusions, and strategic thinking in the execution of their decisions.

Second, students are sent an email containing a link to the assessment administered online. Students are asked to complete the assessment individually. They are also prohibited from accessing the management reports in the software once the assessment begins.

Third, once completed, the assessment is graded against actual data from the subject’s game. Since some of the questions relate to predictions for the current period, the grading needs to be done after the current decision period has been processed so that the actual outcomes can be compared to the predictions. With an automated assessment, the grading can be done and released to the students within minutes of completing the process.

Fourth, the assessment results are provided to the student and instructor in various forms. The student can see how he or she performed on each question. Additionally, the student is provided a report that displays assessment performance relative to 1) his or her teammates; 2) all students in the corresponding industry or
Each of these reports is provided to instructors as well. Instructors also receive aggregated reports displaying assessment results across all students in a given game and across all games. Finally, instructors receive a team-summary report providing the average assessment score for each team as well as its balanced scorecard performance. These reports enable the instructor to quickly link team assessment and simulation performance.

Benefits of the Customized Online Assessment. A customized assessment can provide several key benefits to students, instructors, and program coordinators. For students, the various reports indicate their situational-awareness level for their company and market. In terms of competitive benchmarking, the assessment provides a clear indication of how much they know about their business vis-à-vis the competition. Although most students think they have a good understanding of their business, they are often surprised at how much they do not know or how much more their competition knows. If they are lacking functional knowledge of their operations or the ability to assess the competition’s strengths or predict what the competition is likely to do, they are working at a serious disadvantage. For many students, the assessment is a wake-up call.

The assessment also suggests questions and issues that the student or team may not have considered. For example, a student might be asked to identify the most profitable region in the market, the contribution margin of its largest selling brand, or the amount of production time lost to changeover between brands. These questions alone have prompted students to further investigate their own business.

For instructors, the online assessment tool is particularly useful in coaching individuals and teams to deal with weaknesses. For example, if a team is able to recall pertinent information about the market and their firm (level 1), and can develop some meaning to this information (level 2), but is weak relative to other teams in predicting where the market is heading (level 3), the instructor may need to emphasize the importance of team discussions about future competitor actions and market events.

Alternatively, the summary reports may show that a particular team is below the industry average in manufacturing knowledge. From there, the instructor can delve deeper to determine if anyone on the team, especially the production manager, has sufficient knowledge to adequately manage its operations. Interventions might include reassigning personnel or requiring additional study for certain team members or an instructor tutorial.

One of the important advantages of the assessment for the instructor is the independent verification of how involved each student is in the exercise. In team-based assignments, individuals can drift into the background and let others do the work. Since the answers to the assessment questions are based upon conditions of the firm and its industry, a student cannot perform well if he/she has not studied the firm’s situation and drawn meaningful conclusions from the data. As with other assessment tools, the fact that students know they will be tested increases the odds they will participate in a meaningful way, for no other reason than to pass the test.

We believe the assessment tool can also be used to assess learning within the curriculum. Typically, LSIBS are positioned within capstone or integrative courses. Thus, there is opportunity to assess learning within a meaningful context as students are preparing to matriculate out of the system. A common problem with standardized tests is that motivating students to prepare or perform well is often difficult. Also, the assessment’s content can often be abstract, dealing with unknown companies and business situations. For a review of standardized tests for assessment purposes, see Banta and Pike (1989); Sacks (1997); Barksdale-Ladd and Thomas (2000), Hendel (1991).

With LSIB simulations, both the grade and competitive spirit drive most students to work hard to understand their business and make good decisions. Additionally, the knowledge and conclusions tested are
essential to the management of the students’ firm. They do not need to be induced to study the business; instead, they typically want and need to understand their business and apply all they have learned in the classroom.

In terms of further relevance, the way the questions are presented is familiar and personalized to each student. These are not general-concept questions, but questions that relate directly to the firm with which the student has been actively engaged through five or more decision periods.

The key to curriculum assessment with LSIBS is specifying the learning objectives to be assessed and then identifying the content within the LSIBS that can be used for that assessment. An example learning goal from AACSB is the following: “Each student shall be able to evaluate the financial position of organizations through examination of balance sheets, cash flow statements, and budgets” (Standards, p. 68). To assess this learning objective, questions can be asked pertaining to the student’s own firm and financial statements. Alternatively, if the student knows how to calculate the return on investment or payback period of an investment in fixed capacity, questions can be formulated relative to specific decisions made by the student’s own firm. In general, these questions relate to information that students can and should know to manage the business. To translate this scenario to the real world, curriculum managers can ask their students application-type questions more in line with the questions upper-level executives may ask actual managers.

To fully use the assessment data, tracking performance over time is important, especially if changes are to be made in the curriculum to improve that performance. Also valuable is comparing a school’s performance with peer institutions’ to determine if other programs are performing at a higher or lower level. All of this data can help program coordinators determine where to place their focus for curriculum improvements.

### 360° on Learning

Business schools across the country are faced with two critical challenges in the coming years. First, the accreditation process is becoming increasingly more rigorous, presenting a significant challenge as college personnel struggle to document assurance of learning in their business programs. Faculty reluctance, lack of measurement tools, and lack of observation opportunities have made learning assessment difficult. Second, the financial challenges that business schools face make it difficult to build the courses and measurement tools that would provide student-learning assessment. Faculty members are being asked to teach more and larger classes, making it difficult to embed college-wide assessments of learning into pre-established curricula. Likewise, schools are cutting back on the support staff needed to collect and analyze assessment data.

LSIBSs represent an underutilized medium to achieve AACSB’s learning and assessment goals. Many schools currently employ an LSIBS in capstone and/or integrative courses. LSIBS can contribute towards many of AACSB’s learning objectives. Importantly, a variety of value-added activities and assessments can be overlaid on the typical LSIBS to further enhance the learning experience and contribute to assessing that learning for both the course and the curriculum.

We have discovered it is impossible to design or select a single assessment tool to evaluate all the learning outcomes that AACSB specifies or encourages. As illustrated in Figure 2, each tool is good for a particular set of purposes and settings. The advantage of an LSIBS is that its complexity and duration allow for a variety of assessments tools, which combined can potentially provide a comprehensive, even a 360°, perspective on learning outcomes. In light of current AACSB requirements and the financial constraints many business schools face, we recommend that administrators and educators carefully consider an expanded role for an LSIBS and the course in which it is embedded. Together, they can provide a vehicle by which the school can make significant progress towards achieving AACSB learning and assessment objectives.
Figure 2: 360° Assessment of Learning
References

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