

A Pedagogy to Enhance the Value of Simulations in the Classroom

Ernest R. Cadotte and Christelle MacGuire

Purpose of the Study: The purpose of this study is to illustrate how changing the role of the instructor to that of a Business Coach and adding executive briefings and a rubric for evaluating the critical thinking of the students can enhance the simulation pedagogy.

Methodology: The authors propose a set of activities that can naturally be overlaid on a business simulation to enhance the learning experience. Although the entire pedagogy is described, the focus is on three particular elements - Business Coaches, executive briefings, and a longitudinal assessment of learning. In this examination, instructors assumed the role of Business Coaches and mentored students via a series of executive briefings. These briefings enabled the Coaches to evaluate 658 participating students according to a rubric patterned after Bloom's revised hierarchy of learning.

Results: The data suggest that the enhanced simulation pedagogy provided a valuable platform for learning to occur. The repetitive nature of the exercise coupled with regular assessment and formative feedback were key to the learning outcome.

Value to Marketing Educators: The proposed pedagogy can be readily applied to any business simulation, thereby providing more guidance to students and instructors alike. It can also be applied to other longitudinal assignments such as term projects and comprehensive cases.

Keywords: simulations, executive briefings, Business Coaches, learning assessment, rubric, and Bloom's hierarchy of learning

Ernest R. Cadotte (email: ecadotte@utk.edu) is John W. Fisher Professor of Innovative Learning, and **Christelle MacGuire** (email: macguire@utk.edu) is Business Coach, both at the College of Business Administration, University of Tennessee, Knoxville. Special thanks to Eva Cowell, Business Coach at the University of Tennessee and Assistant Professor, Tusculum College.

Computer-based, business simulations provide students with the opportunity to manage a complex organization over an extended period of 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. As noted by Springer and Borthick (2004), Duffy and Jonassen (1992) and Fosnot (1996), rather than inheriting a teacher's words, simulations require learners to construct their own understanding, raise questions, generate and explore their own models and build representations that organize their experiences.

Stephen, Parente, and Brown (2002) have noted the value of business simulations in a capstone, integrative course. Furthermore, Faria (2001), Feinstein and Cannon (2002), Gosen and Washbush (2004), Stephen, Parente, and Brown (2002), and Wolfe (1997) have concluded that business simulations are effective due to the realism and control that they provide. Furthermore, Burns and Gentry (1992) have observed that computer simulations offer students very robust experiential learning opportunities while Brooks, Burson and Rudd (2006) have observed

that computer-based simulations offer an impressive array of benefits through experiential learning.

In her review of experiential learning, Myers (2010) found the key benefits to be increased students' involvement in the learning process, heightened instructor and student enthusiasm, improved student performance on graded assignments, increased student enjoyment and perceived value of the learning experience, and student confidence and competence (p. 23). It is no surprise then that Mottner (2009) observed that "Competitive, computerized, marketing simulations have been widely used as a teaching and learning tool – particularly in Marketing Strategy and Management courses – and continue to be a meaningful pedagogical tool (p.1)."

The benefits of computerized simulations have been noted in other business disciplines. For example, Riley et al (2013) presented data that indicates that large-scale, integrative business simulations refine the decision-making skills of accounting students, better enabling them to fulfill their future role as business leaders.

Over the course of training more than 10,000 students, we have also come to believe in the power of learning through business simulations. However, our

perceptions are insufficient from a scientific point of view. With this in mind, we conducted an assessment of learning that may prove helpful in further evaluating the efficacy of a simulation experience. In two supplemental studies, we investigated whether student confidence in making business decisions changed during the simulation exercise and what students perceived as the pros and cons of the pedagogy.

The context for this examination is an integrative course required of undergraduate students at the University of Tennessee, a Research One business school located in the United States. The course revolves around a large scale, integrative business simulation (LSIBS).

The course is designed to develop strategic leadership skills among the students. For the school, strategic leadership means that the students should develop an understanding of how a manager selects, evaluates, and implements strategies to position an organization in its environment. Our formal assessment suggests that this goal is largely attained. Our supplemental studies suggest that student confidence improves and students value the entire process. Taken altogether, the data suggest that a simulation can play a major role in student learning.

We will begin this paper with the description of the simulation and the activities that we have added to enhance the learning experience. Next, we will describe our assessment tool and the data collected. Then, we will discuss the factors that we believe contribute to the learning observed. We will then review two exploratory studies that help us to judge the value of the pedagogy from the student perspective. Last, we will discuss what our pedagogical approach and findings mean to the broader teaching community.

AN ENHANCED SIMULATION EXPERIENCE

As highlighted above, business simulations provide an environment within which many of the learning experiences desired by faculty can naturally occur. We have discovered that simulations also provide a platform upon which additional learning activities and assessments can be overlaid. The activities and assessment to be presented here were developed in conjunction with the *Marketplace*[®] simulation offered by Innovative Learning Solutions, Inc.

One of our goals in reviewing one of these activities and its assessment is to help marketing educators see how any simulation experience can be enhanced to greatly expand its role in achieving a course or school's learning objectives. Our pedagogical approach may help marketing faculty design their own courses, thereby addressing one of the chief concerns of Brooks, Burson and Rudd (2006). They observed that there is "little guidance to marketing professors ... for administering the simulation or reinforcing the learning objectives ... (p.43)."

The course that is our focus is required of all business majors and is offered in the second semester

of the junior year. It is intended to integrate and reinforce the content of the functional courses in the core curriculum. The entire course is devoted to the simulation experience.

The simulation used at our school is entitled *Strategic Corporate Management* (SCM). SCM is a large-scale, competitive, full-enterprise, serious simulation that is computerized and web-based. It is integrative in that students struggle with business fundamentals and the interplay between marketing, sales channels, human resources, operations, finance, and accounting. It is both tactical and strategic in that there are many low level tactical decisions that must be managed according to a higher-level strategy. It requires a team of students who specialize in functional roles and need to work together and coordinate their decisions over an extended period of time in order to achieve the team's strategic goals.

Although SCM is a full-enterprise simulation, the marketing and sales aspects have a dominant role, accounting for approximately 50% of the work. The cross-functional work is particularly helpful to marketing students in that they learn about marketing analysis, strategy, and decision-making within the context of a full-enterprise. Importantly, students must deal with a broader range of issues, constraints and interactions than found in the typical marketing simulation. In particular, the marketing and sales specialists must compete for resources with other functional specialists and fully understand the ramifications of their decisions on the other functions and vice versa.

In terms of the game scenario, the simulation employs a new venture situation where students build a business from the ground up. Throughout its two years of operations (eight decision rounds or business quarters), the business evolves and becomes more complex as new decisions need to be made. At the same time, there is a great deal of repetitive work in the ongoing operations, reinforcing previously introduced procedures, reports, and tools of management.

Throughout the exercise, students must analyze the situation, plan a business strategy to improve it, and then work through many tactical decisions as they attempt to execute that strategy out into the future. They face great uncertainty from their own decisions and competitors that are always trying to outsmart them. Incrementally, they learn to skillfully adjust their strategy and tactics as they discover the nature of their real-life decisions, including the available options, linkages to other parts of the business, conflicts, tradeoffs and potential outcomes.

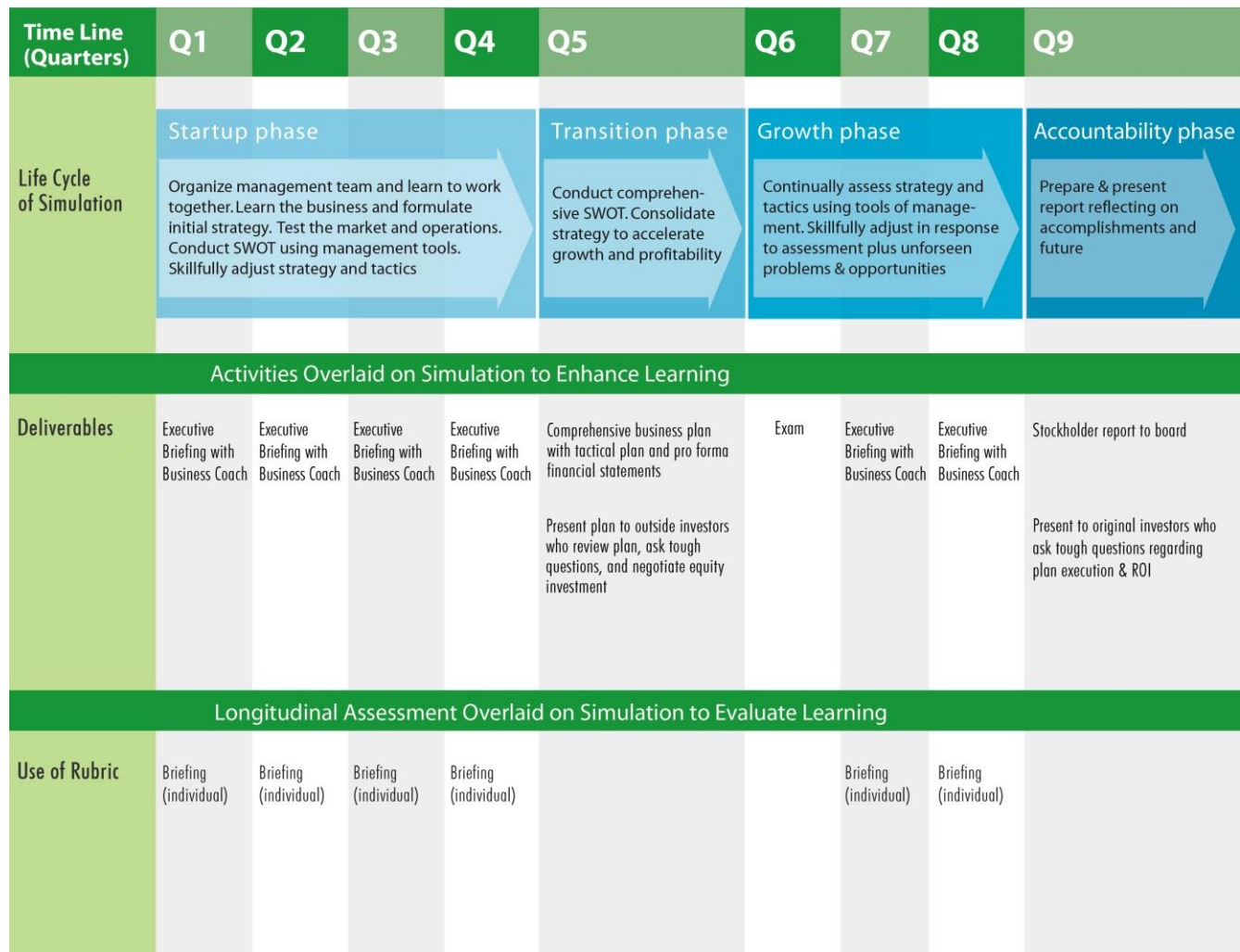
The students compete in teams of 4 or 5 students in universes (games) composed of 4 teams. As many as 800 undergraduate students participate in the experience over the course of a year. Teaching assistants are drawn from the business community and the school's doctoral program. Each is typically assigned to two universes to coach. A normal spring semester might have 400 students divided into 20 sections or games with 10 Coaches and one lead

instructor. The recruitment and training process is described in Appendix 1. While the course represents a significant investment for both the school and the students, its actual cost is about 40% less than the college's case-oriented, capstone course that relies on fulltime faculty and instructors.

The new venture scenario of SCM provides an opportunity to incorporate three value-added activities

plus a longitudinal formal assessment. 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. Within this timeline, we have overlaid the activities and longitudinal assessment that are used to enhance the value of a simulation. See Figure 1.

Figure 1: Timeline of Simulation Activities



As shown in the chart, there is a Startup Phase during which students organize themselves and learn the rules for the simulation. As students refine their understanding of the business, they 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, there is an Accounting Phase during which student teams report on the effectiveness of their strategy and tactics.

Importantly, this natural progression allowed us to overlay activities to enhance a simulation's value. To the learning experience, we added executive briefings, a formal business plan, and a report to the board. The

executive briefings also created an opportunity to capture assessment information. To that end, a rubric was developed for student evaluation and feedback. The timing of these activities and longitudinal assessment can be seen in Figure 1.

In light of the normal flow of the SCM simulation and our use of value-added activities and assessment, we elected to change the role of the instructor to that of being a Business Coach. As will be seen, the primary goal of a Coach is to develop the business capabilities of each student and team through constant challenge, focused guidance, and frequent feedback.

In the following sections, we will review the activities that were developed to enhance learning and the assessment tool to evaluate the learning experience, respectively. We will also describe the role

of the Coach throughout the exercise. We will close with some highlights of the student perspective on the pros and cons of this pedagogy.

VALUE-ADDED ACTIVITIES

Executive Briefings

Just before the teams complete their work for each decision period or business quarter, they conduct an executive briefing with a Business Coach, as portrayed in the first row of the value-added activities in Figure 1. The Coach acts in a capacity similar to that of 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 (Strength, Weaknesses, Opportunities, and Threats) analysis, 3) strategy for the current quarter and going forward, 4) new or revised tactical decisions, and 5) pro forma financial projections for the current quarter.

An executive briefing lasts approximately 25 minutes and 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 desired by many schools and accrediting bodies.

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 can give a mini-lecture explaining the relevant issues and options.

Ultimately, 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.

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

To illustrate the coaching mindset, we have included the reflections of one of the Coaches in this course relative to her strategy for interacting with the students. It includes sample dialogues with two teams on an issue facing each team. See Appendix 2.

Comprehensive Business Plan

At the midpoint of the exercise, the students participate in a venture capital fair. The teams are asked to prepare a Business plan and present it to a group of independent judges who serve as venture capitalists (noted under the value-added activities in Figure 1). The venture capitalists are recruited from the business community and the school's doctoral programs by the Coaches and are paid a small honorarium.

For this comprehensive and complex assignment, the students must develop a formal strategy and work through the tactical details and cash flow requirements to execute it, including all the linkages among the functions. Following the plan presentation, the team must defend it in response to a variety of far-ranging questions from "experts" in different business fields. Based upon the team's performance, the investors decide how much to invest and the share of the company they want in return for that investment. In terms of its business-world counterpart, the business plan simulates a budget-request situation wherein a business team would request to start or expand a project with supervisors or senior managers.

Stockholder Report

At the end of the exercise, there is a final accounting of the team's performance. See the last column under value-added activities in Figure 1. Specifically, the outside evaluators are invited back in their new role as the Board of Directors. Importantly, teams must look the Board members 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) recap their business plan, 2) review their financial, market, operational and human resources performance during the period since the business plan presentation, 3) assess their business strategy and performance, and 4) evaluate their ability to compete in the future. The final report has many parallels in the business world where individuals and teams need to account for the resources they have been given and the projects that they have been assigned.

SIMULATION ASSESSMENT TOOL

The inclusion of the executive briefings and the Business Coach created the opportunity to employ a rubric to assess the students' critical thinking skills over time. Rubrics were also used for the business plan, report to the board and simulation performance. However, our focus here is on the critical thinking observed during the executive briefings. We will now describe the rubric and the data that we collected.

According to Stevens and Levi (2013), "At its most basic level, a rubric is a scoring tool that lays out the specific expectations for an assignment. Rubrics divide an assignment into its component parts and provide a detailed description of what constitutes acceptable or unacceptable levels of performance for each of those parts" (p. 3). A rubric can provide both formative

(developmental) and summative (grading) feedback to the students (Anderson, et al., 2001, pp. 245 – 247).

The characteristics of effective rubrics have been discussed extensively in the learning literature. See for example Andrade (2002) and Swan, Shen and Hiltz (2006). Anderson and Krathwohl (2001), Arter and McTighe (2001), and Stevens and Levi (2013) provide extensive information on rubric characteristics and guidance on how to develop and use them. Drawing upon these sources, a rubric was created for the enhanced LSIBS to assess the executive briefing. The rubric served as both summative and formative evaluations.

Executive Briefing Rubric. Our rubric is an analytical measure (Arter and McTighe, 2001, p. 18) in that it provides a score for three separate traits - depth

of understanding, breadth of understanding, and management by the numbers. Shown in Table 1, the rubric focuses on the student's ability to thoughtfully present his/her strategic and tactical decisions within his or her functional area of responsibility based on a concise analysis of relevant market, operational, and/or financial data as well as a consideration of how these decisions will impact the firm's overall strategy, other functional areas, costs, revenues, and the firm's future capabilities. We also determine if the student can think on his/her feet and respond to questions and challenges in a thoughtful, confident manner. For each metric, the students are evaluated on a four-point scale from weak to very effective.

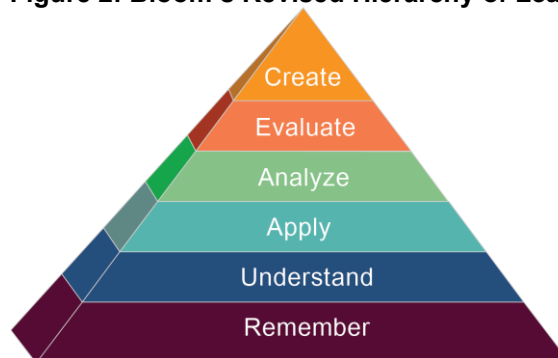
Table 1
Executive Briefing Rubric

	1 WEAK	2 NEEDS TO IMPROVE	3 EFFECTIVE	4 VERY EFFECTIVE/STRONG	SCORE
<i>Depth of Understanding</i>	Student simply listed the decisions in his/her area of responsibility with no business logic or rationale.	Student was comfortable with reviewing several of the actions taken in his/her area of expertise but the business logic was only partially developed and/or sometimes weak or unclear. When prompted for further explanation, the student needed to consult other members of the team for help.	Student was well versed within his/her area of responsibility. Student was successful in developing the business logic using readily available data. However, he/she did not investigate different options/scenarios, drill down into root causes of performance outcomes, or go beyond the obvious analysis of the available information.	Student clearly mastered his/her area of responsibility by demonstrating reasoned judgment, analytical skills, and forward planning. Student came to thoughtful conclusions derived from an extensive evaluation of different options/scenarios within his/her function. He/she creatively analyzed available information, drilled down into root causes, and worked through the potential outcomes of various tactical options/modifications.	
<i>Breadth of Understanding</i>	Student did not make any reference to other areas of the business or the firm's strategy. When prompted for this knowledge, the student was unable to answer.	Student mentioned other functions in his/her discussion but there was no or little evidence that he/she understood the concept of functional integration. There was no evidence that the decision-making process was derived from the firm's overall strategy. Student did not demonstrate his/her ability to predict future outcomes based on lessons learned and corrective actions.	Student demonstrated a good understanding of how his/her decisions tied into the overall strategy of the firm and how the decisions affected and were affected by the other functional areas. However, there was no multifunctional forethought and contingency planning.	Student had a broad understanding of the whole firm, showing good insight into the management of each function. Decisions were presented in light of the overall strategy and how the decisions impacted and were impacted by other functional decisions. Serious consideration was given to multifunctional outcomes and contingency options under different scenarios [forethought]. Student was able to think on his/her feet and respond to wide-ranging questions and challenges in a thoughtful, confident manner.	
<i>Management by the Numbers (using the tools of management)</i>	No data was presented to support the student's analysis, plans, and investment decisions, etc.	Student mostly used general statements to make his/her case. Limited use of data to support the student's arguments or there were errors in the data presented. More or better quantitative information was needed.	Ample use of the available quantitative data to support the analysis, plans, investment decisions, financial request, etc. A deeper analysis using more advanced tools of management such as QFD, statistical analysis, marginal analysis, profit analysis, valuation analysis, etc. was not apparent. Student hesitated to use data during Q&A	Student effortlessly incorporated hard data when making a point or supporting a position. It was clear that the student evaluated the firm's options by extracting appropriate data and analyzing it using advanced tools of management. Student was able to interpret the data and make recommendations. Tactical and strategic changes clearly stemmed from the student's ability to analyze and/or interpret data.	

We believe there is a correspondence between the four rubric ratings and the degree to which a student has progressed up Bloom's revised hierarchy

of learning (Anderson and Krathwohl, 2001) that is shown in Figure 2. Let us elaborate.

Figure 2: Bloom's Revised Hierarchy of Learning



Anderson, L.W., & Krathwohl (Eds.). (2001).

A score of 1 (Weak) indicates the student demonstrated little or no evidence of knowledge, the lowest point in Bloom's hierarchy. Even if the student

exhibited some rudimentary knowledge, it was clear that the student did not understand it or apply it in any meaningful way to the business context of the LSIBS.

A score of 2 (Needs to Improve) indicates the student demonstrated some knowledge and revealed rudimentary to average understanding (the second level in Bloom's hierarchy). The student attempted to connect business concepts and knowledge to the applied business environment of the LSIBS but there were flaws and/or limitations.

A score of 3 (Effective) indicates the student not only demonstrated good business knowledge and understanding (in the form of business concepts, principles, and mathematical and statistical methods), but also successfully applied this knowledge and understanding as he/she made decisions within his/her area of responsibility (level 3 in Bloom's hierarchy). The evidence for application resided within the logic that the student had to provide as justification for each decision. This justification also required analysis and interpretation of the available data (a level 4 activity in Bloom's hierarchy). While the application (decision-making) and analysis were well done, they were typical or expected of a good student. What was missing was creativity and evidence of integration of thought across all functional areas.

A score of 4 (Very Effective/Strong) indicates the student is able to transcend knowledge, understanding, application, and normal analysis. The student demonstrates an ability to analyze and make decisions in a holistic and integrative way, including novel and interesting ways of working and experimenting with the data. The student is able to create new ways of looking at problems and opportunities, including surprising options, trade-offs, and decisions. In Bloom's revised hierarchy, the student can demonstrate both evaluative and creative capabilities. In short, the student's work encompasses all levels of learning in Bloom's revised taxonomy.

Throughout the exercise, the rubric serves a summative role in that it marks the students' cognitive ability to think and act at a given moment in time. It also serves in a formative role in that there is ongoing feedback from the Coach to allow students to adjust their thinking and decision-making and, thus, move up the hierarchy of Bloom's taxonomy. Let us explain the formative role.

The students are given the rubric in advance and provided with guidance by the Coach in terms of the requirements to achieve a score of 3 or 4. By providing the rubric ahead of time, students can use critical thinking skills to evaluate their own deficiencies going into each briefing (Stevens and Levi, 2013, pp. 21-22).

Pintrich (2002) found that students learn best when they are able to use meta-cognitive processes to determine what they do not know in relation to a given task. To further reinforce this learning, Coaches will frequently provide additional commentary right after a briefing on areas in which each student needs to improve going forward. In all cases, the grades are promptly communicated to the students for their timely review.

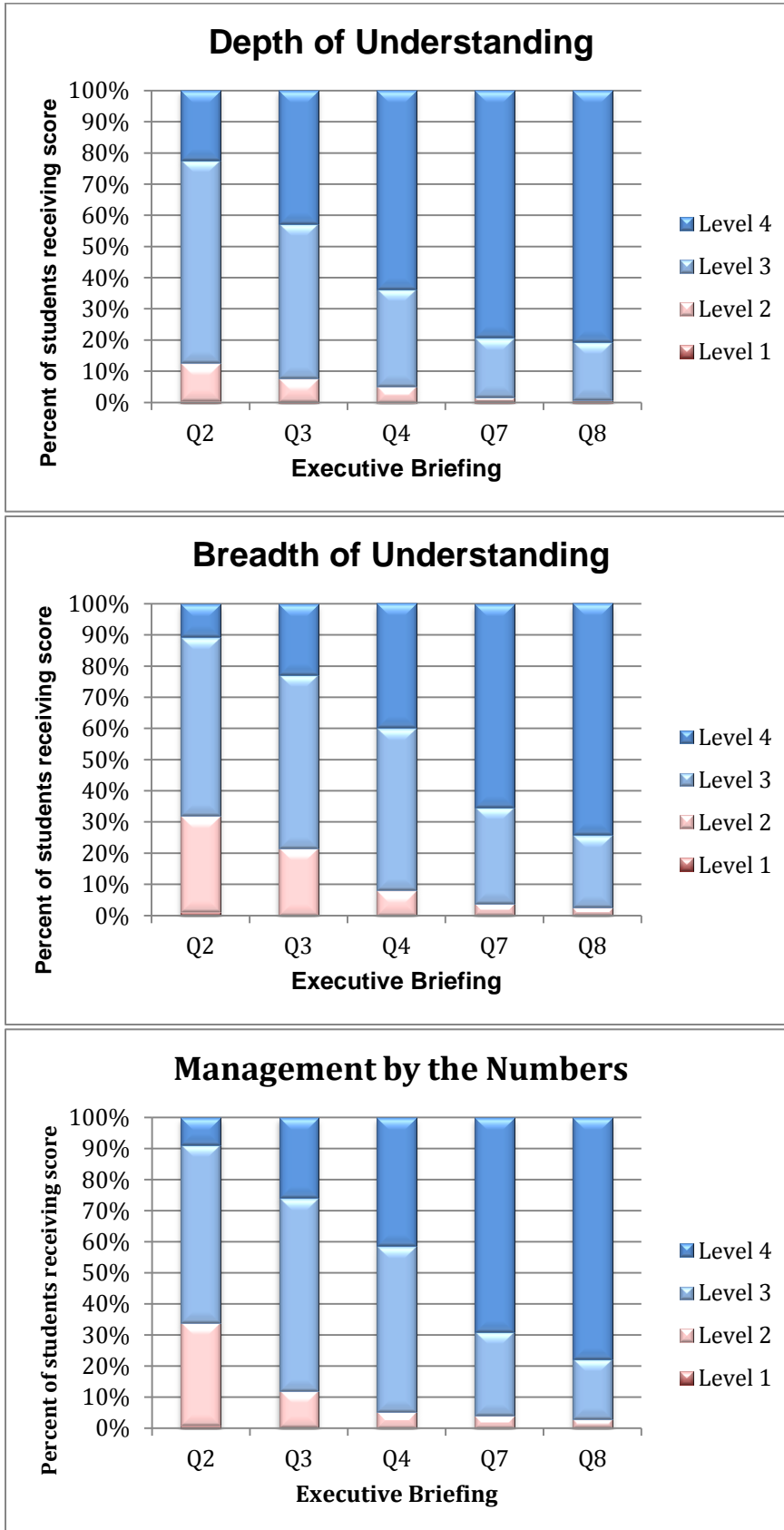
Executive Briefing Scores. Figure 3 contains a summary of the percent of students receiving a score of one, two, three and four on each metric over the course of five executive briefings. Only five executive briefings were evaluated. The first one was treated as a trial briefing and not graded, the fifth quarter briefing was omitted in favor of a more detailed review of each team's tactical plan and pro forma financial projections, and the sixth quarter one was replaced by a comprehensive assessment on the exercise. A total of 658 undergraduate students were evaluated with this rubric during the fall 2012 and spring 2013 semesters. As can be seen from the charts, the majority of students achieved a rating of 3, Effective, on all three metrics from the outset of the simulation. Students were putting to good use their knowledge and understanding of business concepts, principles, and ways of thinking. The justification for their decisions was largely in business terms with fundamental analytics to back them up and suitable consideration of their cross-functional impact.

While these results are encouraging, we note that only a small percent of the students received a rating of 4 (Very Effective), indicating they were able to integrate and be creative (high-level skills) in the initial quarter. The largest percent (22%) of these scores was in the depth of understanding, which focused on the student's own functional area of responsibility.

If there were any deficiencies in the early quarters, they were in the students' breadth of understanding and management by the numbers. Few students received high scores in these areas. In fact, more than 30% received a score of 2, Needs to Improve.

What is noteworthy is that the students improved over time. The percent of weak ratings steadily declined and the percent of very effective ratings steadily grew from quarter to quarter. By the time the students were in the 7th and 8th quarter of play, the vast majority of students achieved a score of 4, Very Effective/Strong.

Figure 3: Executive Briefing Rubric Scores for 658 Students



Progression of Critical Thinking. From the data and our experience, we can say it is more difficult for the students to master cross-functional thinking and evidence-based, decision-making than to become functional specialists. There is a constant need to push the students to expand their thinking beyond their functional area of responsibility. Importantly, most are able to measure up to the highest standard by the end of the exercise.

What causes the apparent progression of the students over the length of the exercise? We think there are many factors. First, the students are not initially familiar with the business decisions they have to make, including the available information, options, tradeoffs, and potential outcomes. Over the course of the simulation, they have to repeat many decisions, review much of the same information, and face similar challenges from their Coach. Progressively, they begin to find new ways to analyze their situation and discover the root causes for their strengths and weaknesses. This work leads to more informed and better judgments. As a result, the students perform better in the simulation and during their executive briefings. We think repetition of difficult and complex decision-making is at the core of the students' development.

Second, students are continually pushed to do better and better by the competition. If another firm moves up in the standings, the focal team has to figure out the cause and create a counter-move to achieve parity or, better yet, create its own advantage. Although the motivation is competition-based rather than learning-based, students dig deeper and deeper into the available information and begin to understand the linkages between the firm's decisions and how these decisions individually and collectively impact performance. As a result, the students are able to apply better and better reasoning to their business decisions and, concomitantly, their performance improves. Thus, the competitive nature of the simulation causes the bar to be continually raised from one business round to the next.

Third, and a corollary to point two, there is a strong internal motivation to win. As long as a team has the potential to be a top performer, the members will work hard to win, which by the nature of simulations, means they must work smarter.

Fourth, students receive positive feedback for their application, analysis, integration, and creativity. Even if they do not move into the top position from one round to the next, their performance typically shows an upward trajectory, which is reinforcing. And, as indicated in Figure 3, the evaluations by the Business Coach become more and more favorable as their decision-making reflects higher cognitive processes. Perhaps most important, the students begin to realize

that much of what they have been taught has relevance in effectively running a business. Their small and large successes often lead to a realization that they have what it takes to be an effective businessperson. Thus, they are encouraged to do better and better.

Last, the students are continually encouraged by their Coach to work at the highest level. Coaches point to the requirements specified in the rubric and often explain what is missing or needed to get to the next level. If something is not well understood, the Coach can provide a brief chalk talk to enlighten the student. The process is very formative in developing desired skills.

Student Perspective

As explained above, we have reason to believe that the students steadily improve their critical thinking skills over the course of the exercise. But, we do not have the student perspective. To that end, two additional studies were conducted. In the first, we measured student confidence in making business decisions in a kind of a before/after test. In the second, we asked students to reflect on the pros and cons of the pedagogy at the end of the program. The results of each study will be reported next.

Business Coaches often report a change in student confidence over the course of the exercise. To determine if this perception was borne out from the students' own perspective, we inquired about their confidence in making business decisions at two points in time. At the start of each semester, we asked students how much confidence they had in making a variety of functional business decisions assuming they were to immediately leave college and enter the business world. We asked the same question again at the end of the sixth quarter of play. Recall they had just completed the comprehensive and challenging business plan work. The confidence questions were embedded at the end of a wide-ranging, objective assessment of their knowledge of their business that was administered at the end of the decision period. Six hundred and thirty-five students responded to the first survey and 656 students responded to the second survey.

On an eleven-point scale where zero (0) represents no confidence and ten (10) represents complete confidence, the students' average confidence increased in all cases with the largest increases in sales channel, team management and marketing. See Table 2. There was positive change in accounting, finance and manufacturing, but there is substantial room for improvement. While we do not have a control group for comparison, the results are consistent with the perceptions of the Coaches and the rubric data.

Table 2: Change in Student Confidence in Making Business Decisions

	Accounting Decisions	Marketing Decisions	Finance Decisions	Sales Management Decisions	Manufacturing Decisions	Team Management Decisions
Before Start of simulation Mean (S.D.) n = 635	4.03 (2.47)	5.92 (1.95)	4.11(2.43)	5.31 (2.00)	4.50 (2.29)	6.72 (1.80)
End of Quarter 6 Mean (S.D.) n = 656	5.07 (2.68)	7.29 (2.03)	5.21 (2.59)	7.10 (1.99)	5.52 (2.59)	8.20 (1.61)
Change	1.04 *	1.37 *	1.10*	1.79 *	1.02 *	1.48 *

Significant at an alpha of 0.01

We also asked another group of 40 students to reflect on the pedagogy, role of the Coach, executive briefings, and rubric. These students were enrolled in a 10-week course during the summer of 2013. The person whom coached these students is the same person who wrote the reflections in Appendix 2. The students were sent an email invitation by the Coach

and were asked to respond to four open-ended questions. They were instructed to send their reflections to a department secretary. The secretary removed all identification and forwarded the complete set of replies to the authors for evaluation. Thirty-seven of the students responded to the query. Their responses are summarized in Table 3.

Table 3: Summary of Student Feedback on the Pros and Cons of the Pedagogy

What do you view as the pros and cons of the way this course is designed?			
Positive comments	Number of occurrences	Negative comments	Number of occurrences
Teamwork skills	9	Low relevance of lecture and/or text relative to simulation activities	8
Real life experience in risk-free environment	8	Insufficient specification or explanation of expectations, structure in EBs, and balanced scorecard	6
Simulation is fun, interactive, challenging, mentally-stimulating	6	Too much emphasis on group work (too much weight on team grades)	3
Functional integration	4		
Personal development	3		
Faculty-student interaction	3		
Clear expectations	1		
In particular, what is the value of a Business Coach? What are the strengths and weaknesses of having the instructor serve as a Business Coach versus the normal role for the instructor?			
Positive comments	Number of occurrences	Negative comments	Number of occurrences
Guidance on how to approach or think about decisions	15	Confused or conflicted in how to work with a person who has two roles	6
Confidence in instructor in dual role because she is knowledgeable about everything	8	Lack of specific feedback	2

Coach goes out of her way to make herself available-like employee-to-employee relationship	5		
What has been the value of the Executive Briefings? What are the pros and cons of working with an instructor in this way?			
Positive comments	Number of occurrences	Negative comments	Number of occurrences
Instrumental in keeping team cohesiveness, strategy alignment, a way to ensure decisions are understood by all team members	10	Coach cannot give straight answers	4
Feedback	9	Not enough time	3
One-on-one interaction and discussion	9	Too much focus on grades	2
Real feel for business meetings (professional mindset, defending idea to an outsider)	8	Possibility of coach having favorites	1
Presentation and communication skills development	5		
Helped to clarify expectations	2		
Coach was able to relate to lecture material	1		
What has been the value of the Executive Briefing rubric for guiding your preparation and receiving feedback (score on the dimensions of depth of understanding, breadth of understanding and management by the numbers)? How can this grading system be improved?			
Positive comments	Number of occurrences	Negative comments	Number of occurrences
Set expectations/structure	12	Score not useful without further explanation (describe what was good/bad or how to improve)	11
Rubric was effective (helped to prepare, was logical and easy to follow, was in depth)	12	Ambiguity in understanding how to interpret the different levels	4
		Needs to be clearer as to how to achieve the maximum points	3

n = 37 (total responses may not add up to 37 because some students did not give a reply to both pros and cons or gave more than one)

The first question asked about the pros and cons of the way the class was designed. As shown in Table 3, the students had more favorable replies than unfavorable ones. Students generally described the class as fun, developmental, informative, and an opportunity to develop leadership and teamwork skills. They valued the ability to make hands-on, practical decisions in a risk-free environment. While many students dreaded to have to work in teams, they found that the set-up of the exercise was actually conducive to developing teamwork skills. A few students mentioned they enjoyed the class set-up as it allowed for interaction with a business coach, real business professionals during the VC Fair, and it also was an

opportunity to prepare for professional interactions. Several students enjoyed learning about the different functions of an organization and how they interact.

Regarding the weaknesses, eight students thought there was not sufficient coordination between lectures and simulation activities or felt the lecture material was not adequate or relevant to the simulation. Six felt the expectations (particularly for the executive briefings) were not clear and some struggled with understanding how the metrics of the balanced scorecard worked and how their decisions affected them.

Regarding the value of having a Business Coach, the replies were favorable. Several students

mentioned valuing the coach as a source of “guidance.” One student wrote: “The value of a business coach is that they will give you guidance when the group is struggling with decisions.” Another said, “She would guide us in the right direction and let us see what changes we could make to benefit our company. Many times, her suggestions have completely changed our outlook on a topic and benefited our company tremendously.” Another said, “Normal instructors help us solve something while the Business Coach gives us some ideas or tips that push us in the right path so we can solve it ourselves. Which, in my opinion, is a lot more challenging and a better learning experience than just being given the answer.” Across all of these replies, it appeared that students enjoyed the interaction with the Coach. The interaction helped them to view their instructor in a different light, that of a guide, someone that cared, and someone that would be like a mentor in the real world.

Several students observed that having the instructor play the role of the Coach gave them confidence in her because of her knowledge of both the content of the course and the challenges faced by all teams. On the other hand, a few students were conflicted working with the same person in her role of Coach and instructor. A couple of others felt the Coach was not helpful in telling them what went wrong when they had trouble.

Regarding the value of the executive briefings, the responses were mostly positive. The students valued the time with the Coach for presentation, discussion and feedback. Students viewed briefings as a motivation to complete their decisions (stay motivated), to organize their thoughts individually and as a team, and also as a way to ensure all team members were on the same page. Several students mentioned that the preparation and mindset required for the briefings was good practice for their professional careers. A few others mentioned that they viewed the briefings as an opportunity to fine-tune their presentation and communication skills.

On the negative side, four students regretted that their coach could not give them straight answers. They would have valued clearer and more direct responses to their questions. A few others felt there was not enough time and a couple found that the grading aspect distracted from the benefits that could have occurred during the briefings.

Finally, the feedback on the executive briefing rubric was mixed. The majority of students liked the structure and definition of expectations. However, half of the students felt that it did not provide sufficient feedback on why they received the score they did and how to improve. The inclusion of an “Explanation” section would address some of these concerns.

In summary, the students found the exercise to be novel and different from the traditional class. They enjoyed getting a taste for the challenges they might experience in their careers. They particularly appreciated the hands-on and practical aspect of the pedagogy. On the other hand, there is room for improvement in defining expectations and explaining

what is lacking or needed in order to perform better in an executive briefing.

What Have We Learned?

We have learned that Business Coaches can play a critical role in the development of our students’ business knowledge, skills and critical thinking. They have a ringside seat on everything the students know, do and think. And, they provide students with challenges, encouragement, and guidance along the way.

We have also learned that the executive briefings provide a systematic and highly informative window into the knowledge, skills and thought processes of students, especially the higher order skills posited in Bloom’s revised hierarchy (Anderson, L.W., & Krathwohl, 2001). As such, they also provide an opportunity to document the development of the student’s thinking while embedded within a business simulation.

We have also learned that students can develop effective skills when they have the opportunity to practice these skills over and over, and when they are pushed by the competition, their own desire to win, as well as the continual feedback, encouragement, and guidance of the Coach.

In terms of the school’s strategic leadership goal for the course, we have learned that students are able to develop an understanding of how a manager selects, evaluates, and implements strategies to position an organization in its environment and are able to provide recommended strategies and actions for complex business situations. This is not to say that all were successful in the management of their firms, but the vast majority of the students understood the process and what they had done right and wrong and needed to do to improve their performance.

We have also learned how to provide additional guidance and structure to a simulation so as to enhance and document the learning experience. We have developed a simulation pedagogy that works well. At the very least, we recommend that marketing faculty incorporate frequent executive briefings with their use of marketing simulations. Concomitantly, we recommend that instructors adopt the role of a Business Coach. The interaction with the students is very helpful to the students and rewarding to the Coach.

Anecdotally, we have observed that students like the idea of being coached. They like to see that their professor is along for the journey and they are not on their own. Psychologically, it helps them to tackle the exercise with more confidence.

We have seen that students value the on-going interaction with their Coach and appreciate the frequent feedback. Students want to know how to improve. Executive briefings are a great opportunity to offer immediate feedback on performance. The repetitiveness of the exercise throughout the semester allows for continuous improvement through self-correction. The students love this type of challenge versus one where they have one chance to prove

themselves, perhaps without really understanding what they have done right or wrong. They are at school to better themselves and they like to know whether or not they are on the right track at each point in the process.

Although not the focus of this manuscript, the incorporation of a business plan and report to the board creates focus, realism, and practice in communicating one's plans and results in an informative, persuasive, and responsible manner. Taken together, the EBs, business plan, report to the board, Business Coach, and longitudinal assessment provide the guidance that Brooks, Burson and Rudd (2006) felt was missing for marketing professors who administer a simulation or try to reinforce its learning objectives (p.43).

We have also learned how to keep the students engaged throughout the course. Many simulations embody a decision environment that remains static over the life of the exercise. As students master the content, the time on task lessens, and, potentially, their interest as well. The SCM simulation and the Tennessee pedagogy create a dynamic, ever-more-demanding, learning environment that causes the bar for success to keep rising.

For balance, we need to recognize that what we consider to be strengths of SCM and our program might be considered weakness in other learning situations. For example, SCM's breadth may not be desirable to an instructor that is interested in developing specialized skills such as value creation, media planning, or sales force management. Its

complexity may not be appropriate when there is limited time to devote to experiential learning or individual exercises are preferred over team-based training. An instructor might also prefer an established brand situation to the new venture one. And, a relatively static scenario might be favored so that students can ultimately wrap their arms around the entirety of the problem, perhaps better enabling them to master the learning content.

There are many simulations available in marketing, sales, retailing, and channels. The strengths and weaknesses of each depend upon the knowledge and skills of the participants, available time for the exercise, learning objectives, and resources of the educational program. SCM is suitable for the learning circumstances, objectives and resources of our College, but would not be suitable under other circumstances.

In closing, we believe that the value-added activities, assessment, and lessons learned are not limited to the simulation and course described here. Many of these features can be adapted to a variety of marketing simulations and other marketing assignments such as projects, cases and complex problems where students work on an assignment for an extended period of time. These assignments often include meetings with the instructor, interim reports and final presentations, all of which can be assessed and enhanced with carefully prepared rubrics. Thus, this comprehensive pedagogy could be used to enhance the learning opportunity with many of our common educational tools.

REFERENCES

- Andrade, H. G. (2002). Teaching with rubrics: the good, the bad and the ugly. *College Teaching*, 53(1): 27-31.
- Arter, J. and McTighe, J. (2001) Scoring Rubrics in the Classroom: Using Performance Criteria for Assessing and Improving Student Performance, Thousand Oaks, CA: Corwin Press.
- Anderson, L.W., and Krathwohl, D. R. (Eds.). (2001). *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives*. New York: Longman.
- Athanassiou, N., McNett, J., & Harvey, C. (2003). Critical Thinking in the Management Classroom: Bloom's Taxonomy as a Learning Tool. *Journal of Management Education*, 27 (5), 533-555.
- Bloom, B.S.(1956). Taxonomy of Educational Objectives, Handbook 1: The Cognitive Domain. New York: David McKay Co Inc..
- Brooks, B. W., Burson, T. E., and Rudd, D. V (2006). Addressing Current Research Gaps and Directions in Educational Marketing Simulations *Journal for Advancement of Marketing Education*
- Burns, A. C., and Gentry, J. W. (1992), Computer Simulation Games in Marketing: Past, Present, and Future," *Marketing Education Review*, 2(Spring), 3-13.
- Duffy, T.M., Jonassen, D.H. eds (1992). *Constructionism and the Technology of Instruction: A Conversation*. Hillsdale, NJ: Erlbaum.
- Faria, A.J., (2001). The Changing Nature of Business Simulation/ Gaming Research: A Brief History. *Simulation and Gaming*, 32 (1), 97-110.
- Feinstein, A.H., & Cannon, H.M. (2002). Constructs of Simulation Evaluation. *Simulation and Gaming*, 33 (4), 425-440.
- Fosnot, C.T. (1996). Constructionism: A Psychological Theory of Learning. In *Constructionism: Theory, Perspectives and Practice*, edited by C.T. Fosnot, New York, NY: Columbia University.
- Gosen, J., & Washbush, J. (2004). A Review on Scholarship Assessing Experiential Learning Effectiveness. *Simulation and Gaming*, 35 (2), 270-293.
- Krathwohl, D.R. (2002). A Revision of Bloom's Taxonomy: An Overview. *Theory into Practice*, 41 (4), 212-218.
- Mottner, S., (2009). Experimenting with Team Norms in a Marketing Simulation. *Journal for Advancement of Marketing Education*. (15), 1-13
- Myers, S. D., (2010). Experiential Learning and Consumer Behavior: An Exercise in Consumer Decision Making, *Journal for Advancement of Marketing Education*. 17, 23-27.

- Pintrich, P.R. (2002). The Role of Metacognitive Knowledge in Learning, Teaching, and Assessing. *Theory into Practice*, 41 (4), 219-225.
- Riley, R. A., Cadotte, E. R., Bonney, F. L., and MacGuire, C. (2013), "Using a Business Simulation to Enhance Accounting Education." *Issues in Accounting Education*, 28 (4).
- Springer, C.W. and A.F. Borthick (2004). Business Simulation to Stage Critical Thinking in Introductory Accounting: Rationale, Design and Implementation. *Issues in Accounting Education*, 19(3), 277-303.
- Stephen, J., Parente, D.H., & Brown, R. C. (2002). Seeing the Forest and the Trees: Balancing Functional and Integrative Knowledge Using Large Scale Simulations in Capstone Business Strategy Classes. *Journal of Management Education*, 26 (2), 164-193.
- Stevens, D. D. and Levi A. J. (2013), Introduction to Rubrics: An Assessment Tool to Save Grading Time, Convey Effective Feedback, and Promote Student Learning, Second Edition, Sterling, VA: Stylus Publishing.
- Swan, K., Shen, J., & Hiltz, S. R. (2006). Assessment and collaboration in online learning. *Journal of Asynchronous Learning Networks*, 10 (1): 45-62.
- Wolfe, J. (1997). The Effectiveness of Business Games in Strategic Management Course Work. *Simulation and Gaming*, 28 (4), 360-376

Appendix 1: Recruitment and Training of Business Coaches

To ensure high standards in the administration of the course, the guidance provided to students, and the evaluation of the students' work, it is necessary to properly recruit and train the Coaches. We draw one-third of our Coaches from various doctoral programs across the College with the remaining two-thirds coming from the business community. We prefer a broad cross section of individuals representing different functional specialties and life experiences. This diversity has broadened the perspective of the entire group in working with students and evaluating their performance. If all of the Coaches were only from marketing, we would not fully understand how marketing impacts and is impacted by the other functions within the organization. For example, the perspective of an accountant has changed the importance that we place on profit analysis of brands, regions, and channels while the manufacturing expert has taught us to explore brand proliferation with our students and its effect on production line changeovers and unit costs. The human resource person has given us good procedures for developing interpersonal skills among the students and how to deal with problematic students and teams, including the proper process for firing a teammate.

Given the number and diversity of Coaches plus the need for uniform standards for coaching and evaluation, we have developed a thorough training program. As a starting point, the new Coaches participate in a two-day workshop where they are placed into teams and work through the exercise in the same fashion as the students. They give quarterly executive briefings to experienced Coaches and prepare and present a business plan to outside investors (the experienced Coaches in a different role). By example and with follow up discussions, they see how experienced Coaches conduct executive briefings. In addition, they are evaluated using the same rubrics that are used with the students. They also receive personal feedback regarding how the rubric was applied to them and why the experienced Coach made the judgments he or she did.

Following the workshop, each Coach trainee also plays the entire simulation from start to finish so that the Coach can experience all functional aspects of the simulation. This training is conducted during the first few weeks of the trainee's work as a Coach. The course leader provides guidance and answers questions as needed. This experience is to give the new Coaches a comprehensive view of everything that the students will experience.

During the trainee's first semester as a Coach, he or she is also assigned an experienced Coach as a mentor. The trainee is paid for two sections of the course, but only leads one of them. For the first one, the trainee shadows the experienced Coach, observing the interplay between the team and the Coach. The trainee also does all of the rubric evaluations in parallel with the experienced Coach. The two will compare notes to better understand the strategy behind the Coach's interactions with the students and how the evaluations were made. Later in the same day, the new Coach will perform the same activities in his/her section. The mentor will typically join the new Coach for the first few weeks of executive briefings as an additional quality check.

To achieve standardization on the scoring of the rubrics, we conduct three norming meetings at key points during the semester. These meetings enable the Coaches to share their evaluation process and learn from each other. Importantly, these meetings increase the likelihood everyone will apply the same standards to their rubric evaluations.

For example, we have a two to three-hour norming session following the first graded executive briefing. Each Coach reviews the grades assigned to each student and comments on why one student received a better or worse score than another. The experienced Coaches start the review process so that the new Coaches can benchmark off of them. When there are new Coaches present, there is a lively discussion as to what constitutes a 2, 3 or 4 on the rubric scale. But, by way of discussion and example, the group is able to zero in on what is required to move from one level to the next. There is a similar norming meeting following the business plan and final report to the board.

Finally, the rubrics themselves play an important role in the process. Rubrics encourage uniform grading across multiple evaluators. When the evaluators come from different disciplines, both inside and outside the university, each will apply standards based upon his/her 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.

Appendix 2: Reflections of a Business Coach on Student Interactions by Eva Cowell*

When I am a Business Coach, the first thing I do is make it very clear that I will not make decisions for the students. I will never tell them what to do. When they ask, I reply, "you know I'm not going to answer that." They will then rephrase the question- "Is it a good/bad idea to do (insert decision here)?" My reply is almost always "Is it?"

There are three very simple reasons for not answering a direct question or making a decision for them. First, this is their company. If I tell them specifically what to do, and they do it and it goes sour, then they will blame me. If I don't tell them, and it goes well, then they feel like they have figured something out. That is the greatest challenge coaching this type of class - how to move the students from wanting to be given answers to critically thinking and analyzing the data they have in order to make informed decisions about what is best for their company. It puts the responsibility, accountability, and the resulting consequences in their hands. As a student, they are not used to this. As an instructor, I have had to grow in my ability to direct discovery rather than simply revealing it.

The second reason for not making decisions for them is that you will not know how the quarter will play out until the game is processed. Without the knowledge of the other companies' decisions, you really do not know what may be the perfect decision to make. What may have worked in one 'universe' in another class, in another semester may not work in this universe, in this class, in this semester. You often hear students claiming "My friend took this class and their company did (insert decisions)" to which my reply is always "And that may have worked for them, but in order for that to take place here, every other team has to make the exact same decisions that all the other teams made in that universe. How likely do you think that is?"

The last reason for not directly telling a team what to do is to encourage a global understanding of not only their own company, but also the marketplace at large. One of the most significant takeaways from this class is the extent to which, prior to taking this course, the students are truly unaware of the integrative nature of business. Having been so focused in their major and cognate core of classes, they see every discipline as a silo standing alone. This simulation forces them to see that a decision made in one area of business can and will have the potential to force a decision in another area. It is also critical to understand the impact that any one company has on the marketplace as a whole. Competition and analysis of performance drive thought-out business decisions and adjustment of strategies.

Do students like this approach? Some feel uncomfortable with ambiguity and the fact that there is no right or wrong. These decisions aren't black and white. Others begin to challenge themselves further and come to you with not only the reasons and the rationale, but also the impact and that is the greater goal for this course. Speaking with a student at the end of last semester, I asked how he felt about the way the EB's were set up. He said that at first he didn't like it and they were unsure of their decisions. Then he realized that in his entire college career, his professors had told him what to do and what to think and this was the first time that he thought for himself, and that felt good. He said he has never had a class like this and wished more classes were like this one. He felt confident in his skills going forward and into the workplace.

That is why I am a firm believer in this pedagogy. It isn't just about business decisions or the games, but it stimulates the students' ability to think for themselves, to make decisions, and to see the impact of those decisions based on the analysis of their data.

Here are a couple of concrete examples of a typical discussion in an executive briefing.

EMERGENCY LOAN SITUATION

Business Coach (BC): So how do you feel about the results from last quarter.

Student (FINANCE): not so good

Student (MARKETING): we had good ratings

Student (FINANCE): I can't figure out why we had an emergency loan

BC: did you have any stock outs?

Student (MANUFACTURING): no, but we had a loan

Student (MARKETING): even with that, I don't think it is that bad

BC: so why did you have the loan? What were your brand ratings?

Student (MARKETING RESEARCH): ad 82 and 90, brand 88 and 92, so they were good

BC: so what did you see as the real issue?

Student (SALES MGMT): I don't think we had enough outlets, we should have expanded sooner?

Student (MARKETING): I'm not sure that's it, we were rated good

BC: so if you were rated well, you didn't have stock outs and you still did not have sales, what could be the problem? What did your competition do that you didn't?

Student (FINANCE): they are in more places.

BC: (to Student FINANCE) so you just said that you didn't think that expansion and outlets had anything to do with it.

Student 2 (FINANCE): I was looking at the financials; maybe I should have looked at other areas

The above scenario takes place usually around Q4. Each student is focused so intently on their area of responsibility that they do not venture into other areas for causes. The value in this exchange is to stimulate team/company thinking and discussion prior to coming to the briefings. They begin to act as a decision-making and problem-solving body instead of captains of their own area. As I was leaving class a couple of weeks ago, a student walked out with me. He looked at me and said, "Do you know what the problem with our team is?" I said "No, what?" "We aren't thinking as a team. We haven't moved past the point where we are trying to understand our own area. We need to think more about how our decisions are going to affect each other." "Good point" I replied to him "And in thinking about how your areas affect each other, what else will you discover?" Without missing a beat, he said, "I think we may start to understand how we can control the market, or at least react to it."

FIXED CAPACITY

Manufacturing decision: no increase in capacity for the following quarter. The team is currently at a fixed capacity of 100, operating capacity of 98.

Student: We are not increasing fixed capacity for the next quarter since we are not using it all this quarter.

BC: You have 100 fixed and you have operating set at 98 and you aren't going to increase your fixed?

Student: no, because we don't really feel we will use the 98 this time.

BC: competitively, where do you stand with the other companies on capacity in the universe? Are you competitive?

Student: we have more than XY, who has 75. And EGI and Tech Corp also have 100. So we are competitive.

BC: Do you think they will stay with their capacity or add?

Student: I don't feel right now that we need anymore and they may not either since we're not selling that much.

BC: think about your decisions. Did you open two sales offices this time?

Student: yes

BC: so you will sell out of them next quarter?

Student: yes

BC: and what are your target market segments?

Student: cost cutter and workhorse.

BC: ok, so you have 100 fixed, you are at 98 operating, you feel you are matched in the industry, and you are opening 2 more sales offices this time and you are in the cost cutter and workhorse segments. Will any of those decisions affect the needs of manufacturing?

Student: (quietly pensive, looks to the other members on the team) mmmmm, well maybe we need to think about some things.

Student 2: we won't be able to satisfy demand next time will we?

BC: do you think you would be able to?

Student: hmmm, not if we want to be competitive (looks to teammates), we may want to go ahead and add some more, especially since we are not in a niche market like EGI, and we want to be ahead of everyone else.

The scenario here represents the Business Coach identifying potential flaws in the strategy but creating connections for the student that they may have not made. It keeps them focused on the cause and effect of their decisions and the integrative nature of business. The coach could easily have stated all those facts earlier, but by taking the student and team through the series of questions and then restating the information/data they provided back to them, it gives the students another chance to reevaluate. That is why the role of the Business Coach is so vital. The students have the information. Area by area, they relay the decisions that were made, but the practice and behavior prior to this class is just that, it's about a singular decision area. It is our role as the Business Coach to help them integrate and connect the dots and see how independently those decisions may work, but when coupled with other decision areas, they may need revision. Some teams catch on to this earlier than others, but when it clicks, it's magic.

*Eva Cowell, Business Coach at the University of Tennessee and Assistant Professor, Tusculum College.