

USING CRITICAL PROBLEM BASED LEARNING FACTORS IN AN INTEGRATED UNDERGRADUATE BUSINESS CURRICULUM: A BUSINESS COURSE SUCCESS

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ABSTRACT

University management education continues to be criticized for not meeting the needs of its most important stakeholders: students, graduates, and the business community. Such criticism stems from evidence that management education is not promoting the learning needed to build essential business knowledge and competencies. It appears management education is failing to listen to its customers and is not providing graduates with experience in developing leadership and teamwork skills, solving problems, and dealing with ambiguity. The silo approach long used in traditional management education prepares graduates to function vertically when businesses now operate horizontally. To better serve management education stakeholders, Northern Arizona University's College of Business Administration developed and offers a course called BizBlock. BizBlock integrates core undergraduate business courses early in the business curriculum and uses problem-based learning (PBL) strategies. Anecdotal evidence suggests that by combining functional integration and PBL educational approaches, management education stakeholder needs can be better met.

INTRODUCTION

University management education continues to be criticized for not meeting the needs of the various stakeholders: students, graduates and the business community. Researchers have indicated the current management education does not prepare students for the realities of business life (Bailey, Sass, Swiercz, Seal, & Kayes, 2005; Bovinet, 2000; Jauch et al., 2000; Olian et al., 2002; Porter & McKibben, 1988). Business leaders have voiced concern that new graduates are not equipped for the ambiguity and group dynamics of evolving decentralized organizations (Corsini, Crittenden, Keeley, Trompeter, & Viechnicki, 2000; Hamilton, McFarland, & Mirchandani, 2000; Hartenian, Schelienger, & Frederickson, 2001;

Markulis, Strang, & Howe, 2004; Wheeler, 1998). Faculty has complained there is not support or incentive for change (Bechtel, 1988; Hill, 1990; Stinson & Milter, 1996).

Management education is not providing students with the learning needed to excel in the workplace. Bovinet (2000) observed that while students may demonstrate competence in theoretical courses, they are often ineffective when dealing with the ambiguity and rigor of the working world (p. 53). Faculty affirm that students carry little competence and knowledge from one course to the next, from one semester to another, and from college to the workplace (Jauch et al., 2000). Clearly, there is a disconnect between what is conveyed in management education and the needs of the student stakeholder (Porter & McKibben, 1988). Students learn quantitative concepts and theories that are rarely used in business practice. According to Bailey et al. (2005), newly hired graduates are assumed to be technically proficient; however, "they display limited self-awareness, leadership, interpersonal communication, and conflict management skills" (p. 40). New graduates lack the soft skills like communication, teamwork, and leadership necessary to deal with the political realities of organizational life (Smith, 2005). This concern is made explicit in an AACSB (Olian et al., 2002) report *Management Education at Risk*, "Business education is inadequate in preparing future business leaders to manage value conflicts and dilemmas they expect to face in their business careers" (p 20).

Similarly, management education is failing to provide the business community with graduates who have the competencies needed to run less traditional decentralized organizations. The new organizational forms faced by today's graduates are flat, team-oriented, customer focused, and collaborative (Hamilton et al., 2000). Traditionally, business schools have designed course work for each business major that reflects traditional vertical forms of organizational structure and functions. Course content focuses on specialized disciplines to provide students with a thorough grounding in their respective disciplines. This

Developments in Business Simulation and Experiential Learning, Volume 33, 2006

focus results in what has been termed a silo mentality (Hartenian et al., 2001). The silo mentality perpetuated by management education prepares graduates to function vertically when businesses now operate horizontally.

With the silo approach to business education, students become technically proficient within their discipline but never learn to effectively share and integrate discipline-specific knowledge (Corsini et al., 2000; Wheeler, 1998). Markulis et al. (2004) indicated that while business community expects graduates to have requisite disciplinary knowledge, business leaders report that graduates are not able to apply this knowledge in the interdisciplinary environment found in decentralized organizations.

Although businesses express the need for change in pedagogy, business schools (especially at the undergraduate level) “have continued to deliver their core common body of knowledge in a curriculum compartmentalized by discipline” (Miller, 2000, p. 113). Faculty is trained in Ph.D. programs to be experts in a narrow discipline and to offer their expertise to students and colleagues. Any training teachers receive in Ph.D. programs focuses on covering core body of knowledge content using lecture and discussion. As stated by Stinson and Milner (1996), “Traditional faculty orientations are strongly embedded in the culture and in the profession and reinforced by the existing structures and reward systems” (p. 39). The results of a university faculty survey indicated there was considerable support for curriculum change but significantly less support for personally being involved in implementing the change (Hill, 1990). These results are confirmed by an earlier observation by Bechtel (1988), that participation in curriculum change, which include an interdisciplinary component, is incompatible with the professional self-interests of the faculty. Interdisciplinary curriculum efforts are “high risk endeavors in a professional sense since these ... affect research and publication opportunities and, consequently, promotion and tenure possibilities” (Hill, 1990, p. 317).

Traditional business school pedagogy has focused upon communicating the content of a discipline and according to Fekula (1994) “In the face of certainty, course content is both necessary and sufficient; however, when faced with uncertainty, course content, though necessary, is insufficient ... They must know how to discover and become informed by recognizing new relationships. To be effective in a world of uncertainty, students must learn to learn” (pp. 134-135). The key insight is the uncertain environments business graduates will enter require new pedagogy. “Merely helping students become technically qualified to recall, recite, and apply predefined classroom routines to predefined classroom problems is not adequate preparation for the business environment” (Wenger & Hornyak, 1999, p. 311). The presence of uncertainty and the criticisms of management education have not gone unheeded by the AACSB, the major international accrediting body for business schools:

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... Faculty members should find such approaches that are suited to their subject matter, and should adopt active learning methodologies (AACSB, 2005, p. 57)

Many business programs have recognized the need to change in response to external pressures from key stakeholders. A critical element in this change is the recognition of the need to redesign and integrate the traditional business curricula (Vesper, 1973). The redesign of business curricula most often centers on achieving greater integration across disciplines. By diffusing functional boundaries, these integration efforts better prepare students to work effectively in decentralized organizations (Hamilton et al., 2000). A number of business schools have proactively pursued discipline integration as the curricular change needed to address stakeholder concerns. For example, schools such as Babson College, Wharton School at the University of Pennsylvania, The University of Denver, Boston College, and University of Dayton have all embraced an integrative approach (Steiner & Wells, 2000).

BIZBLOCK – A COURSE DESCRIPTION

To better serve its stakeholders, the Northern Arizona University’s College of Business Administration offered a course called BizBlock in the fall of 2000. BizBlock integrates core business courses early in the business curriculum and uses problem-based learning (PBL) strategies. Anecdotal evidence suggests that by combining these two educational approaches, all business school stakeholders can be satisfied. The combination of integration and problem based learning allows students the opportunity to gain mastery in the functional overlap and ambiguity that are a salient part of business practice. Such mastery addresses the concerns of faculty and employers regarding the competency of business graduates.

Although the course has evolved considerably over its five-year history, the concept of meeting stakeholder needs remained the primary driver for curricular design and implementation. This integration effort took direction from scholars such as Hamilton et al. (2000) who indicated that “The redesign curricula must cut across traditional boundaries to develop and reinforce the appropriate bundles of technical knowledge as well as social and organizational skills” (p. 103). The BizBlock design mandate was simple in theory: take the core three-credit-hour undergraduate courses (must be completed to earn a degree in business administration or accountancy) in management, marketing, and business communications and integrate the material so it can be delivered in a single nine-credit-hour course block. The key directive of this mandate was to integrate the three

Developments in Business Simulation and Experiential Learning, Volume 33, 2006

core courses, not just deliver the content of the three courses sequentially.

Typically, BizBlock is taken during the first semester of the junior year and represents the first upper division business courses taken at the university. For many students this will be the first course taken at the university level, having transferred in from local community colleges. Therefore, student workload expectations are often lower than those expectations found in later upper division courses.

The BizBlock course is facilitated by a team of three faculty instructors, representing the three disciplines included in the course. The course meets two times a week in 4 ½ hour time blocks. Each instructor issues a grade for the equivalent of three credit hours; thus, students will receive three grades on their transcript representing each of the three discipline courses in BizBlock. Each instructor grades integrated assignments independently, and students often receive different grades on the same assignment that reflect their ability to apply discipline specific knowledge.

BizBlock is taught using facilitated discussions, breakout sessions, guest speakers, and a limited number of interactive traditional lectures. The three faculty members remain in the classroom for the entire class session to participate in discussions and encourage class participation. Actual lecturing and facilitation time is allocated among the instructors based on student and project needs during planning sessions which occur before every class. The faculty team also meets with individual students or teams by appointment.

Students in BizBlock are organized in teams of five to seven depending on the class size. It has been determined that faculty facilitation of more than ten teams results in decreased performance and thus team size is dictated more by the maximum class size of 70 students than by research suggesting optimal team size. The student teams are presented the problem of identifying a consumer need and developing a business plan that fills that need. Lectures, assignments, exams, and activities are designed to motivate students to develop, improve, and augment their understanding of the problem.

The problem and resulting business plan are developed and revised throughout the semester-long course. Details are added, concepts are reinforced, and corrections are made to submitted drafts before the finished plan is presented for final grading. None of the drafts receive a grade, thus making the process of developing the plan a true learning experience. Additionally, the plan is presented to the class and faculty teaching team four times throughout the semester to gather extensive feedback and improve the delivery. Final plans are presented in a competitive format before a panel of 3-5 venture capitalists that provides outside validation to the students' work. The team judged by the venture capitalist panel to be most deserving of funding is declared the winning team and often given the opportunity to revise the plan for organized undergraduate business plan competitions.

BizBlock is delivered in a format that allows time for both dissemination of discipline specific theory and engagement of students in the critical application of that theory. The problem of providing students with the requisite core discipline content and a PBL experience is lessened when sufficient time is available in the course. BizBlock is a course allotted nine university contact hours, allowing significant time for both theory discussions and facilitated application. To complete the BizBlock course requirements, students must use some finance, accounting and operations concepts in addition to management and marketing. Guest speakers are used to provide necessary content in these areas and students are strongly encouraged to do additional relevant research and discovery. In addition, the major project assigned in BizBlock requires students to engage in conversations with the business community. As such, students are motivated to learn the language of each discipline. The learning process is much like the immersion learning of a foreign language and results in an accelerated acquisition of key concepts and content.

The biggest hurdle in the development of BizBlock was faculty perceptions of what basic course concepts from each discipline needed to be included in the final design. This problem was recognized by Schatz (1997), "Most business school curricula is geared toward a 'brokered' compromise between fiefdoms that results in sub-optimization of the parts, rather than viewing itself as a total system that needs adjustment." Faculty is trained to be experts in their field. They are the classic "sage on the stage," believing that each element of content in their traditional discipline is critical to the students' success. Overcoming this hurdle required BizBlock faculty who were willing to challenge the paradigm of teach, learn, practice, and assess, (Peterson, 2004) and embrace newer teaching methods such as team teaching and problem-based learning.

PROBLEM-BASED LEARNING

Recognizing the need for education to impart the understanding and use of knowledge, the evidence supports introducing experiential learning early in business education. Kolb (1984) defined learning as "a process whereby knowledge is created through the transformation of experience" (p. 38). This same thought is communicated in Rogers (1969) concept of "affective learning." As Tootoonchi, Lyons, and Hagen (2002) observed "mechanical memorization is undesirable because it is lifeless, quickly forgotten, and does not have a great deal of applicability in the real world ... affective learning encourages self-initiation, motivation by curiosity, creative thinking, and involvement" (p. 80).

Students learn through experience and active involvement. Considerable evidence supports the superiority of active over passive learning (Elam & Spotts, 2004; Kayes & Kayes, 2003; Smith, 2005). Experiential learning "promotes the activation of prior knowledge as new knowledge and its reconstruction as new knowledge is

Developments in Business Simulation and Experiential Learning, Volume 33, 2006

integrated into existing schemata” (Smith, 2005, p. 358). Despite the evidence highlighting the need for experiential learning which focuses on the higher level of Bloom’s taxonomy (e.g., synthesis and evaluation), clear guidance on implementation is difficult to find.

However, recalling the stakeholder concern that business curriculum has little relationship with what is important to success in business, (Pfeffer & Fong, 2002) this traditional thinking seems misguided. Peterson (2004) describes the workplace as an environment where “problems are ill structured, ambiguous, messy, complex, and most often do not have one correct answer that can be found at the end of the book in the answer key” (p. 632). If experiential learning is a more effective pedagogy and unstructured problem solving is what students will encounter in the workplace, then business schools should create learning opportunities that recognize these factors. Such opportunities would be served using a problem-based approach that is unique and challenging for both faculty and students.

Problem-based learning (PBL) is encouraged by Sherwood (2004), “Problems are what business students will ultimately grapple with in their professional lives, and thus a problem-based approach presents a hopeful marriage between student needs and pedagogy” (p. 536). According to Boud and Feletti (1997), PBL originated in the medical school of Canada’s McMaster University in the early 1970s and has since been adopted for use in schools of engineering, architecture social work, law, nursing, and business. PBL is described as an inductive approach to learning (Sherwood, 2004). The concept of PBL is simple, although the implementation can be challenging. Rather than being taught through lectures, teams of students are engaged in solving relevant unstructured problems. Instead of being given a complete problem statement, “Students are expected to define problems, identify related gaps in their knowledge, collect relevant information, and propose solutions ... Instructors advise student problem-solving teams, offering suggestions and direction when needed” (Smith, 2005, p. 358). Although this is a generic description of PBL, specific PBL applications appears in the literature in many varieties. Barrows (1986) developed a taxonomy identifying six PBL types: lecture-based cases, case-based lectures, case method, modified case based, problem based, and closed-loop problem based. As with teaching styles, the PBL types can be adapted and used in combinations to meet the needs of different instructional situations.

According to Peterson (2004), the three critical success factors for PBL based courses are orienting the students, picking the problem, and forming the team.

ORIENTING THE STUDENTS IN PBL

Problem based learning is a highly non-traditional instructional strategy. Students are used to, and hence comfortable with, the standard read the book, attend the lecture, memorize the facts, and take the exam approach. As

such, any deviation from this norm will greatly increase student (and often faculty) anxiety. This increased anxiety is especially evident in those students for whom the traditional model has served well in the past: those with high grade point averages.

Research indicates that some level of anxiety and stress improves performance; however, there appears to be an anxiety level where students become anxious, uncertain, and agitated and performance deteriorates (Peterson, 2004; Xie & Johns, 1995). In order to decrease anxiety to a level that enhances performance, it is necessary to help students gain an understanding of PBL by orienting them to this vastly different academic format. Orienting students to the purpose and scope of a PBL based course will help them deal with an ambiguous problem and process.

PICKING THE PROBLEM IN PBL

The second key to PBL success identified by Peterson (2004) is choosing an appropriate problem. According to Smith (2005), “Well-chosen problems force PBL students in business school to acquire and apply knowledge from marketing, finance, operations, and other disciplines. Currently, this kind of integration only occurs, for most students, in business strategy courses that conclude their degree programs” (p. 363). Smith (2005) notes that courses such as principles of management and principles of marketing have so much literacy content that “PBL’s problem-orientation may be a distraction rather than an aid to learning” (p. 372). Although this observation has some merit, developing the right problem and delivery methodology can motivate students to seek out the literacy content typically delivered in these core courses.

Duch, Groh, and Allen (2001) identified the appropriate problem for PBL as a problem that engages students, links theory and application, and challenges students to justify their reasoning and actions. Stepien and Pyke (1997) indicated that a good problem is often difficult to define, ambiguous, changes with new information, and has multiple solutions. As Peterson (2004) points out, “Real authentic problems have blind alleys and dead ends. As instructors, it is our role as facilitators to help students to understand that a blind alley or dead end is not a failure; it is just part of the problem solving process” (p. 638).

FORMING THE TEAM IN PBL

The last success factor for PBL identified by Peterson (2004) is the proper formation of the teams. According to Peterson (2004), the problem addressed in PBL must ensure that cooperation and collaboration among team members is required to successfully resolve the problem. This being the case, the problem must be complex enough that team members cannot simply divide up the tasks, but rather engage in team discussions and investigations to resolve the problem. Assuring that teams can function at the levels necessary to achieve cooperation and collaboration is

Developments in Business Simulation and Experiential Learning, Volume 33, 2006

difficult. As Cohen (1994) points out, proper team formation introduces a number of challenges including balancing composition, coordinating conflicting schedules, and managing social loafing.

BIZBLOCK – ADDRESSING THE THREE CRITICAL PBL SUCCESS FACTORS

BizBlock was designed to address Peterson's (2004) three critical PBL success factors. Evidence suggests that focusing on orienting the students, picking the problem, and forming the teams has contributed to BizBlock's success. Although the current implementation was developed by trial and error, much can be learned by examining the current best practices.

ORIENTING THE STUDENTS IN BIZBLOCK

The orientation to BizBlock begins even before students register for the class. This pre-orientation is actually a form of student recruitment. As students begin to register for the next semester, BizBlock faculty present a brief overview of BizBlock to students finishing those classes needed to attain business major status (primarily managerial accounting and quantitative analysis). Such recruitment is a means of assuring the enrollment necessary to break even in a course that has high labor costs (three faculty salaries). BizBlock pre-orientation is part information and part publicity. Faculty tell student about the mechanics of the class (when and how the class is run) and also the intangible benefits of the course (a professional accomplishment to put on a resume and discuss in an interview). As such, students who enroll in BizBlock already have a certain level of understanding of the non-traditional nature of the class.

The first class is predominantly orientation, as are most first classes. However, the first BizBlock class includes a session for input from the students regarding their reasons for taking the course and what they hope to gain from the class and also a session where faculty address student concerns and perceptions regarding BizBlock. Given that each BizBlock class lasts 4 1/2 hours, there is sufficient time for orientation during the first class.

Although Peterson (2004) identifies the initial orientation of students as critical to PBL success, BizBlock has shown that PBL success depends on a continual reorientation of expectations through active intervention.

The ongoing orientation used in BizBlock includes adjusting stress levels to the point of maximum performance. This is a difficult process to balance, given that this performance point is not the same for every student and every student team. However, the probability of performance regression can be reduced by bringing students up to the maximum stress levels gradually. To make this gradual ascent, BizBlock faculty provide appropriate and

timely insight to help BizBlock students understand and anticipate what to expect both procedurally and psychologically as the class progresses. In addition, groups of former BizBlock students are brought in as panel discussants to address issues and questions at crucial points in the class. The delicate balance between raising and lowering stress levels to maintain peak performance has proven to be different for every BizBlock class. Thus, the BizBlock faculty is continually adjusting the interventions to facilitate student learning.

As stated earlier, the major project in BizBlock is the development and presentation of a professional business plan. To contemplate completing this project at the beginning of the semester is overwhelming at best. In order for students to see this project as doable, the project is done in sections. While faculty present information needed to complete each section, they do not offer a template or outline for the section. Doing so would not afford student teams the opportunity to creatively solve and hence own the problems unique to their business. While disseminating information and theories prior to giving an assignment is relatively traditional, the major project in BizBlock involves the need for students to apply knowledge gained in the classroom in order to do the research relevant to their particular business. Thus, every new section of the business plan requires a certain degree of orientation regarding the scope of this particular section. While each section addresses a common business plan component (for example, marketing and sales), every business will have distinctive needs in terms of that component.

PICKING THE PROBLEM IN BIZBLOCK

The first iteration of BizBlock had the same goal of creating a business but a slightly different approach than the current BizBlock class. The earliest versions of BizBlock required students to not only develop a business but to actually start that business. In terms of business experience, this focus offered incredible breadth but due to the time constraint of a 16 week semester, it could offer very little depth.

In the second year of BizBlock, the major project was narrowed to the design and presentation of a professional business plan. This business plan then became the major project in all subsequent BizBlock classes. Currently, each student team selects their business through a process of brainstorming, consensus, and research. It has been suggested that teams be assigned businesses that are of interest to local business people and small business centers. The rationale for assigning a business to each student team is it would save time that is normally spent on teams struggling to think of and select a viable business. However, selecting their own business give teams the sense of ownership needed to keep members interested and motivated.

By the second class, students have been assigned to teams. After an informal session geared toward getting to

Developments in Business Simulation and Experiential Learning, Volume 33, 2006

know each other and a brief lecture on team development, the rest of the class time is devoted to brainstorming. Teams are given markers and large post-it pads and one team member is assigned the task of writing down every business idea generated by the team. The only rule is that no idea is discussed and discarded although one idea can be used to springboard into another idea. In addition, each team must generate at least 150 potential business ideas. At the end of class, each team presents several of their favorite ideas and the assignment for the next class meeting is given: each team is to list their top ten business ideas. The team must also present their reasons for selecting these ten businesses. As one team presents their ideas, the rest of the class and the faculty ask questions which help clarify the potential success and challenges of each business. Over the next two weeks, teams are encouraged to narrow the list to one business. While the BizBlock faculty facilitates this process, they do not select a business; that decision is always made by the team. There is rarely complete consensus among team members regarding the selection and oftentimes, one student has a vested interest in a particular business. If this student cannot convince the other members of the team that this business is feasible and cannot generate some level of enthusiasm about the business, it is strongly advised that the team selects another business on their list. However, one or several highly enthusiastic team members can inspire the rest of the team and drive the project.

Historically, few teams end up presenting the same business they initially selected. In the course of their research, teams will gain a much greater understanding of industry trends, consumer preferences, land and building needs, and relevant legal and financial issues that affect their business. Further research will often dictate radical changes such as altering the product, adding or deleting services, or targeting a different market. The evolution of their business idea is an important and powerful (and often painful) learning experience. Again, BizBlock faculty is available to offer advice, guidance, and suggestions during this evolution but not to directly intervene in the process.

FORMING THE TEAM IN BIZBLOCK

Because team balance is an important factor in a team's ultimate success, student teams are not self-selected in BizBlock. Having faculty form the teams is consistent with creating a problem environment that simulates real business situations, where individuals are placed on project teams because they are both available and have the skills needed by the team. Thus, balancing the student teams becomes a managerial decision undertaken by the faculty team. An advantage of the team teaching format of BizBlock is that these team-balancing decisions can be made with input from the three different faculty perspectives. Because many students in BizBlock will still switch business majors before graduation, identifying a balanced team in terms of declared major has not proven effective. Instead, teams are selected

based on a work style profiles and intangible factors identified by the faculty during student introductions.

The work styles profile instrument used in BizBlock was developed by Carolyn Gellerman for The Boeing Company (http://naaee.org/changing/work_styles.htm). Placing students in one of four categories labeled; Doer, Expressive, Amiable, Analytic. The instrument offers complete descriptive profiles that roughly correspond to individuals characterized as those who act decisively (Doers), those who act intuitively (Expressives), those who act cooperatively (Amiable), and those who act on data (Analytic). Although these profiles could be used exclusively for formation of the teams, it was found that some students complete these profiles with a bias toward a work style that reflects what they want to be rather than providing an honest self assessment. Therefore, using both the self assessment profiles and intangible assessment by the faculty, teams are balanced across the four work styles categories with special care taken to assure that each team has at least one member with a Doer profile and one member with an Analytic profile.

The issues of coordinating conflicting schedules and managing social loafing are addressed as important learning opportunities. As Bailey et al. (2005) points out, social loafing is not just restricted to the classroom. It occurs frequently in business settings, and therefore "poses both a challenge to, and an opportunity for, first-rate instruction" (p. 43). The same opportunity for instruction occurs with the problem of coordinating schedules. These two team formation challenges present experiential opportunities to learn inductively, in contrast to traditional classroom characterized by the deductive approach (Whetten & Clark, 1996). By resolving these challenges inductively, students gain the tacit implementation knowledge that cannot be communicated by instruction in management theory.

FUTURE RESEARCH

This paper presents a number of rich opportunities for future research focusing on integration, team teaching, and problem-based learning. These areas could be investigated individually or in combination. An obvious strategy is to do empirical studies of a comparative nature, e.g., comparing pre-course/post-course knowledge levels of an integrated course with a non-integrated course (Wolfe, 1977). These comparative efforts pose significant research problems. The most common problem is the inability to control parameters that have been shown to bias results. For example: difficulty randomizing and controlling the student group profile; difficulty controlling for different instructor personalities; and difficulty comparing outcomes when objectives differ. Thus, it is prudent to remain focused on case study research and measure the benefits without comparison.

The topic of integration deserves further research. Specifically, does combining courses provide students with the perception that the disciplines are integrated? Are students able to see the connections and apply concepts

Developments in Business Simulation and Experiential Learning, Volume 33, 2006

presented in the domain of one discipline to another discipline? What is the best way to achieve integration? What are the best disciplines to integrate? A better understanding of course integration would be a significant contribution to current literature. The integration research challenge is presented by Hamilton et al. (2000) “it is difficult to conceptualize how integration can best be accomplished and how its effectiveness can be measured” (p. 104)

The team teaching literature discusses obstacles to successful team teaching, which often include time available for organizing a course, the lack of appreciation for the difficulty of team teaching, and the difficulty of finding satisfactory evaluation approaches (Davis, 1995; Napier et al., 2002). Do these difficulties matter to team teaching success? What are the main drivers of team teaching success? Is the major success factor trust? What is the optimal team size and does team size matter? BizBlock has been successful with five different teams, what is the reason for this success? Wenger and Hornyak (1999) claimed that one of the major benefits of team teaching is that it provides a model for students of “a wide variety of professional interactions including disagreement, exploration, concept evaluation, conflict, resolution, and collaboration” (p. 312). Although the BizBlock faculty has received feedback suggesting this phenomenon, no empirical evidence has been collected and it is unclear if there is a positive or negative impact on student learning.

An intriguing question for PBL focuses on the methodology effectiveness. Is student learning more strongly correlated with the evaluation methodology or the teaching methodology? According to Barrows (1986) “Evaluation determines the way in which students will study despite anything teachers may say about the goals of a course” (p. 485). Does changing the exam change the learning? Peterson (2004) claims that PBL facilitates the development of teamwork competencies and problem-solving ability but in the process creates anxious students and conflict among team members. These claims have not been tested empirically. What are the real costs and benefits from implementing PBL early in the business curriculum? What benefits of a PBL opportunity provide students who later participate in non-PBL courses?

SUMMARY

The combination of course integration and PBL as implemented in BizBlock is unique, and clearly addresses the stakeholders’ concerns. Traditional business education has been criticized by students for failing to prepare them for the realities of business life. It has failed to heed the call from business organizations to provide graduates with soft skills, such as leadership, communication, and teamwork. And traditional structures have failed to provide the incentives, support, and flexibility needed to adapt education to the dynamic environment of modern business.

Students will recognize the benefits of PBL over traditional learning when they enter the workforce. The education literature has provided empirical evidence for a number of benefits offered by PBL, (Smith, 2005) these include:

- Better problem-solving skills
- Improved knowledge retention and recall
- Increased understanding of material
- Better focus on practice-relevant knowledge
- Increased knowledge integration
- Greater thoughtfulness
- Improved teamwork, leadership, and social skills
- Motivated student learning

Although Smith (2005) provides some corroborative evidence for each of the identified benefits, he concludes that “the weight of available evidence suggests that PBL does not significantly improve student problem-solving skills” (p. 366). The rationale for this conclusion is that “problem-solving skills involve substantial amounts of knowledge, general and domain specific, that students will not acquire without direct instruction” (p. 370). This suggests that PBL cannot provide the direct instruction necessary to impart the “substantial amounts of knowledge.” Although there is little empirical evidence available to contradict this conclusion, the PBL implementation in BizBlock is designed explicitly to provide focused instruction. Thus, feedback from both former students and faculty who have BizBlock students in more advanced courses confirms that BizBlock students appear to have superior problem solving skills in addition to the other benefits reviewed by Smith (2005).

It is not often that business leaders have the opportunity to directly assess the results of an academic program much less a specific class. Even if an assessment can be made by drawing inferences from interviews with students and current employees, the only influence business leaders can often exercise over college curriculum comes through the recommendations of advisory boards. BizBlock uniquely links business leaders, faculty, and students in open dialogue regarding learning outcomes. When venture capitalists view the final student presentations, they are not just evaluating business ideas for investment opportunity. The venture capitalists are business leaders assessing the value of PBL and whether the students have developed the skills needed to be successful in business. The BizBlock venture capitalists are consistently impressed with the outcomes of this integrated course. After each course, these business leaders are probed for recommendations and much of the course content has been developed directly from these recommendations. BizBlock is an example of listening to the customer and delivering to the need even when it challenges tradition.

In theory the PBL implementations should push irrelevant material out of the curriculum (Smith, 2005) and lessen the teaching demands for faculty. In BizBlock reality, this process occurs over time with new material replacing

Developments in Business Simulation and Experiential Learning, Volume 33, 2006

old proportionally, as the business leaders evaluate what is relevant as reflected in the final presentation. This dynamic process of constant change creates some dilemmas for faculty team members. It is documented by Barrows (1986) that the lecture-based method is the least expensive teaching method in terms of cost, time, and effort; "It requires the least effort for curriculum designers and no special teaching skills or materials" (p. 485). In contrast, BizBlock is expensive in terms of learning curve costs, requiring a reiterative adaptive process and faculty with facilitatory teaching skills. If it is true as Napier et al. (2002) suggest, "Faculty members team teach for the incentives they receive" (p.430 then the incentive rewards from teaching BizBlock must exceed the costs.

What are the incentive rewards for undertaking this type of complex effort? It is not monetary, for no additional compensation is offered to the BizBlock faculty. It is not favorable treatment in the promotion and tenure process, for the risks have been documented by Hill (1990) and Bechtel (1988). The incentive to participate (students), teach (faculty) and support (business leaders) comes from the results. The costs are high, but the intangible rewards such as self-development, learning about new ways of teaching, delivering value to the customer, and changing lives is what makes BizBlock a continuing success.

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Developments in Business Simulation and Experiential Learning, Volume 33, 2006

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