

LEARNING IN HIGHER EDUCATION

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INTEGRATING COLLABORATION AND COMPETITION: ADAPTING BUSINESS SIMULATIONS TO ONLINE PROBLEM-BASED LEARNING

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ABSTRACT

Business simulations are increasingly used in problem-based learning environments. Yet, while some research identifies the competition intrinsic in business simulations as a strong motivator of student engagement, other research identifies collaboration as a strong motivator. This sets up an inherent tension between competition and collaboration as motivators of student engagement. This research offers an approach for balancing this tension to capitalize on the motivational effects of both competition and collaboration.

Introduction

The education literature extols the virtues of student collaboration and, certainly, collaboration has numerous benefits especially in problem-based learning environments (i.e., Palinscar & Herrenkohl, 2002). In addition, the experiential nature of problem-based learning moves teaching and learning beyond neatly packaged academic theory toward the messy realism of corporate careers (March & Augier, 2007). Yet, the collaboration often necessary in problem-based learning can result in free riding as individual effort (or lack thereof) is sometimes masked by group results. When using business simulations for problem-based learning, the best performing team members sometimes have a tendency to hoard new learning insights from other teams in order to maximize simulation scores.

Along these lines, recent research in this journal by Cartledge, Baldwin, and Holloway (2006) suggests that incorporating business simulations to enhance problem-based learning can be beneficial but that such simulations can also create their own set of disincentives. The Cartledge et. al. (2006: 27) study specifically mentions two of these disincentives. One, “students actually became less engaged which allowed the more capable group members to dominate the group’s activities” and two, the learning curve involved in mastering a simulation was so steep that some students felt overwhelmed leading to lower levels of student engagement. Other research has shown that, rather than collaboration, competition among students may, if done properly, increase student engagement with course content (Mitchell, 2004). Yet, problems arise when competition encourages students to hoard rather than share knowledge and experience.

Each of these problems is potentially amplified in online learning environments in which students do not have the immediacy of instructor assistance (Hannay & Newvine, 2006). Thus, this research proposes methods for balancing the tension between collaboration and competition when using simulations in online problem-based learning. To do so, the following section first provides a brief overview of the utilization of business simulations for problem-based learning. Second, the research addresses the problem of free riding and knowledge hoarding by explaining how instructors can reward students for contributing to an online frequently asked questions (FAQs) repository. Third, the research addresses the tension between collaboration and competition by providing a “common enemy” against which all student teams compete.

Utilization of Business Simulations for Problem-Based Learning

Business simulations typically require student teams to compete against other student teams. An exception includes simulations that allow students to compete against computer teams rather than other student teams. (As explained in a later section, a combination of these two modalities—student teams and computer teams—allows a unique adaptation encouraging both collaboration and competition). The general trend, however, is to run simulations with student teams competing directly against one another (Summers, 2004).

When student teams compete against one another, there is a tendency for students to hoard knowledge and experience as they progress through the simulation. One reason for this is that grading typically includes weighting that leans heavily toward relative team per-

formance. With such incentives in place, students can actually hurt their simulation grade by helping other struggling competitor teams. Annihilation of competing teams' simulation companies, not mutual benefit through knowledge and experience sharing, becomes the path toward the highest grade. Clearly, this is not the intent of problem-based learning.

Still, neglecting the competitive aspects of business simulations by encouraging only collaboration with relatively little grading weight for competitive success can drive out on of the main benefits of simulations—engagement with course content as students compete head-on with other teams. In addition, a strong competitive element makes simulation learning more realistic, helping prepare students for the stresses of competitive environments common in many business careers.

Typically, student team performance on business simulations incorporates a variety of success measures. Some simulations use a balanced scorecard similar to that originally proposed for corporate and nonprofit organizational strategic goal alignment and measurement by Kaplan and Norton (1992). Other simulations focus on a limited set of metrics such as profitability and market share consistent with certain organizational practices (Reichheld & Rogers, 2005). In addition, many instructors incorporate peer review to get a sense of individual contributions. Peer evaluations, however, are well known to present numerous difficulties (i.e., Falchikov & Goldfinch, 2000) necessitating additional avenues of assessment.

Addressing Free Riding and Knowledge Hoarding using Student-Generated FAQs

A problem with most collaborative group work is the potential, and even the probability, that some students will free ride on others' work (Anderson, 2005). Clearly, this is not limited to education; corporations grapple with the same problem. Yet, we can borrow from corporate solutions to ease the free riding problem in the online problem-based learning environments. Knowledge sharing research by Van Alstyne (2005) shows the intuitive result that managers compensated for individual performance shared the least amount of information with other managers while those compensated for team performance shared more. Interestingly, in organizations with compensation based on overall organizational performance, managers shared the most information.

One way to incorporate such research findings into the practical problems of online problem-based learning is

by rewarding students for sharing information (Kemp, 2006). However, this creates a problem. When teams are arranged to compete with one another, it becomes disadvantageous to help competing teams by sharing new learning insights. To overcome the natural tendency to hoard information when doing so results in outperforming competitor simulation teams, an online frequently asked questions (FAQ) repository is helpful. When combined with a "common enemy" structure (explained in the following section), a FAQ repository creates incentives for information sharing.

Instructors can set up the FAQ on a course management system (i.e., Blackboard or WebCT) with general topics that tend to be problematic for students as they move up a simulation learning curve. For example, a set of FAQs could be set up in advance based on the functional areas of marketing, production, finance, etc. contained in the simulation. Subtopics in each of these functional topical areas provide a framework on which students can share and build knowledge. For instance, marketing might have the subtopic FAQ threads of demand forecasting, customer satisfaction, and market segment growth might be included to focus students in the desired direction. It is also important to realize that numerous questions will arise that instructors will not anticipate; therefore, it is helpful to allow students the option of starting new FAQ discussion threads.

The question remains, though, of how to motivate competing teams to share knowledge. The key is to separately reward individual students for each student's contributions to the FAQ knowledge repository. Instructors may link a portion of individual student grades to the quality and quantity of students' FAQ contributions. They can also control for the timing of contributions; early contributions receive more credit than contributions later in the course. This encourages students to climb the learning curve themselves rather than wait for their team members to do so for them.

A side benefit is that this also quickly generates a list of FAQs that helps alleviate the instructor of much of the work of answering the same questions repeatedly. Instructors can simply refer students with questions to the growing list of FAQs. To further alleviate the instructor's administrative burden in helping students learn the mechanics of a simulation, instructors may also award a small amount of credit for students who post specific, high-quality questions for others to answer. This creates an overall environment in which students are motivated to share new learning and insights even when such knowledge can be used by other teams to compete in the simulated market.

Our experience rewarding individual students for generating a FAQ repository of learning meets the criteria specified by Anand, Gardner, & Morris (2007)—socialized agency, differentiated expertise, defensible turf, and organizational support. *Socialized agency* describes the desire individuals have to follow the path of former successful employees. For example, individual accountants are socialized to believe the path of becoming a partner is the preferred career route. *Differentiated expertise* arises when new employees add their idiosyncratic experiences. *Defensible turf* exists when a socialized agent uses differentiated expertise to defend a new way of doing things despite the entrenched mode of practice. *Organizational support* occurs when the overall culture of an organization supports differentiated expertise and development of defensible turf. A growing, student-generated list of FAQs supports each of these.

Instructors have a role in applying these elements to online problem-based learning environments. Socialized agency occurs when instructors remind students of previous students' success with the simulation engendering confidence. Students also bring differentiated expertise to the course with them. Some are better versed in finance, others in research and development, still others in production. The instructor's role is to encourage students to express their idiosyncratic knowledge that students can bring to bear on the problem. A growing FAQ repository helps achieve this.

As the teams work together, defensible turf becomes second nature as those with expertise in one functional area assist those working on other functional area problems. This mix of cross-functional teams is exactly what we would envision as an ideal well-honed simulation team. The one thing remaining, though, is organizational support. Here, the instructor must constantly set the tone by encouraging students as they struggle as well as let them know the resources available that students may not have fully exploited (online simulation tutorials, toll-free technical support, etc.). Our experience has been that a FAQ list is even helpful for technical support related problems—students gain credit for posting the knowledge they gained from technical support contact, further increasing the overall body of knowledge shared and alleviating instructors of much of the simulation workload due to such technical issues.

Thus, a growing list of online FAQs places the burden of learning on student teams while rewarding the individual students who worked to share new knowledge with competing teams. In effect, this creates a path in which students take charge of their own learning, one

of the tenets of problem-based learning (Chickering & Gamson, 1987).

The previous section briefly addressed the tension between collaboration and competition; the next section focuses specifically on this tension and develops workable solutions.

Balancing the Tension between Collaboration and Competition

Balancing the tension between collaboration and competition is, of course, a problem in corporate environments as well online course environments (Marriott, 2004). Some corporations, however, have found ways to balance the competing incentives of collaboration and competition. Apple, Inc. employees rally around selling the distinctions of the Macintosh operating system versus Microsoft's operating system. This is embodied in Apple's current "I'm a Mac; I'm a PC" marketing campaign. Whole Foods Markets motivates its employees by focusing on the health benefits of its organic food with retail giants such as Kroger's constituting the common enemy.

Similarly, instructors can arrange problem-based learning business simulation experiences in which students face such a "common enemy" but in a way that does not inhibit the motivational effects of cross-team collaboration. The key is to reward both competition and collaboration in a way that promotes both while discouraging neither. Having a common enemy gives students a target to defeat other than other student teams.

The previous section explained how student-generated FAQs encourage collaboration by rewarding students for knowledge sharing across business simulation teams. The inherent tension is that helping other simulation teams through knowledge sharing may decrease students' own relative simulation performance. However, targeting a common enemy aligns team's interests.

Specifically, business simulations typically allow instructors to set computer teams that compete against other student teams. Rather than directing attention to competition among student teams, setting one or more computer teams as the common enemy refocuses student engagement away from team-to-team competition and toward team-to-computer competition. Sharing knowledge across student teams thus becomes a way to "beat the enemy," maintaining the motivational aspects of competition without dampening the motivational aspects of collaboration.

From a practical perspective, this is easy to set up. Instructors can base part of simulation grade weightings on whether or not each team overcomes the enemy (by achieving simulation performance scores higher than the computer team). Struggling student teams can quickly find assistance from other student teams through the student-generated FAQs repository (for which individual students are rewarded).

The result is that student simulation teams begin to function more as separate teams with a common mission than as separate teams with zero-sum interests. Competition remains an integral part of the experience, but students also gain from the benefits of cross-team collaboration.

Conclusions

Instructors face challenges in gleaning the motivational aspects of collaboration and competition without one canceling out the other. For those using business simulations in online problem-based learning environments, the reinforcing techniques of student-generated FAQs and setting up a common enemy help preserve the motivational value of both collaboration and competition while also helping to ameliorate some aspects of free riding.

While the methods presented have been utilized only in online courses by the author, they may also be effective in traditional on-campus courses. The only modification would be to use a course management system (i.e., Blackboard or WebCT) to develop the FAQs repository. Alternatively, instructors could set up their own website and use third-party software (i.e., Wordpress) to set up a wiki to serve as the FAQs repository.

By aligning students' interest to encourage collaboration while maintaining competition, students gain the benefits of both.

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FISCAL POLICY FORMULATION: LEARNING BY DOING

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ABSTRACT

The education literature contains numerous articles on student engagement. This paper describes one example of engaging students in a Principles of Macroeconomics class – a simulated Cabinet meeting to formulate fiscal policy for a country undergoing a fiscal crisis. Students were challenged to work in teams, to think analytically, and to negotiate a sound policy framework. In general, students appreciated this approach to learning macroeconomics because it allowed them to become more actively involved in using economic concepts in a concrete fashion.

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Introduction

Teaching Principles of Macroeconomics to students who are required to take this course as part of their general college education can be a challenge. Students wonder, in the first few weeks of class, why they need to know the definitions of various economic terms such as the gross domestic product (GDP) or the consumer price index (CPI). Then, as the course progresses, students must use the terms in developing theoretical frameworks, like aggregate demand and aggregate supply, which challenge their ability to think abstractly. Finally, students must put the terms and frameworks together in order to analyze the effects of fiscal and monetary policy. While some rare students possess an analytical learning style and absorb the macroeconomic frameworks quickly, most students have different learning styles and struggle to keep up, become frustrated, or absent themselves from class. Is it possible to make macroeconomic principles more interesting and more engaging for those students with non-analytical learning styles?

The purpose of this paper is to describe a fiscal policy project used in my teaching of Macroeconomic Principles. The objective of the project is to challenge students in teams to consider the data of a country (fictional or actual) experiencing a fiscal crisis and then formulate an appropriate fiscal policy to put the country back on a track of sustainable economic growth.

The teams (4-6 students) meet for the last 10 minutes of class over several class periods.² In each meeting they are asked to probe more deeply into the specific conditions of the country. The instructor listens in on these discussions, providing coaching when needed. The culmination of the project is a cabinet meeting in which each team plays the role of a specific ministry (in the U.S. these government agencies are called departments) and tries to shape fiscal policy to the best advantage of their ministry's stakeholders.

Literature Review on Student Engagement

The education literature contains numerous articles that review the techniques as well as the art of motivating students to become involved and curious learners. This literature emphasizes at least three separate but overlapping threads: (i) passive versus active learning, (ii) differences in learning styles, and (iii) whether learning is deeper on an individual (competitive) basis or on a group (collaborative) basis.

While more active learning has been introduced into classrooms recently, passive learning continues to be the primary mode of learning that students have been exposed to throughout their student careers. Passive learning occurs in the traditional lecture class where students absorb what the professor has said by taking notes on facts, concepts, or theories; and then recite back those

² I selected the teams, but allowed students the option to join another team if they could find someone on that team willing to trade.

facts, concepts, or theories on exams, usually of the multiple choice variety when the class size is large. Passive learning is instructor focused. However, it is not likely to be their primary mode of learning in the work place (Wingfield and Black, 2005).

Active learning, or the other hand, is student focused. It incorporates student involvement where the students undergo some experience, reflect on that experience, and then explain (in a written paper, on exams, or through discussions) what they have learned by the experience. In active learning, it is important for students to be able to make the connection between the experience and the specific learning goal. Overall learning is reinforced if the students have to apply the concepts learned (through lectures) during the experience. It is also helpful if the experiential exercise simulates reality because students see the relevance to what they have learned in the passive mode. Some researchers have argued that experience-based learning is the key to effective learning. If correctly applied, experiential learning can enhance student involvement, provide students with an intuitive understanding of complex issues, and increase students' ownership of their learning (Leonard and Steerey, 2006).

Has the literature reached a definitive conclusion that active learning is more effective than passive learning? While many researchers would provide an unqualified yes to this question, there are some researchers who are less sanguine. Wingfield and Black (2005) found no difference between active and passive course designs in student grades or satisfaction, based on students' response to a questionnaire. They did find, however, that students perceived a course designed for active learning to be more useful for their future job. Based on their study, students apparently realize that at some point in their learning the passive mode will be unavailable, and they will have to become active learners amassing facts, thinking critically about those facts, and reaching a solution to the problem at hand.

Another overlapping thread in the literature focuses on learning styles (and sometimes teaching styles). Numerous researchers over three decades have found that students learn in diverse ways. Hawk and Shah (2007) reviewed five learning style models to assess their comparability, reliability, and validity.³ Some students need concrete examples, some want abstract thinking, some

need quiet time to reflect, some need activity, some favor visual learning, some need to hear the information, some need to sit down and read the text, some learn by writing out (taking notes) what they have learned, etc. Hawk and Shah found that three of the five learning style instruments (LSI, PEPS, and RASI) had solid support in the literature for both instrument reliability and validity; one learning style instrument (VARK) had moderate support for both; one had moderate support for reliability and weak support for validity (GSD); and one did not have any support in the literature on either dimension (ILS). When Hawk and Shah considered the comparability criterion, they found no learning style dimension or element that was common to all five models. They concluded that no single learning style instrument could "capture all of the richness of the phenomenon of learning styles." (p.14)

Obviously, one teacher cannot cater to every learning style, even if there were a clearly defined set of learning styles. Thus, students who strongly favor one or two styles over all the other possible learning styles should be encouraged to become more comfortable with a variety of styles. Some evidence that students can develop additional learning styles is provided by Fox and Ronkowski (1997). They found that in lower level introductory political science courses students needed concrete examples and active experiences to reinforce their learning; this preference was stronger in women than men. However, the students in upper division political science courses preferred abstract and reflective learning; here there was no difference in the preference between women and men. Perhaps self-selection may explain part of their findings, since upper division courses are primarily populated by majors. It also is likely that as students progress from lower division classes to upper division classes their portfolio of learning styles evolves and diversifies.

While the learning style approach attempts to match specific classroom activities with specific learning styles, this does not imply that every instructor should adjust his or her teaching methods to address every learning style. Students should be exposed to different styles of teaching as a way to expand their learning styles; and instructors should teach in a style (or styles) where they possess a comparative advantage. However, this literature demonstrates that instructors should be aware of different styles (Naik, 2003). Approaching the classroom with a mixture of instructional methods (passive versus active, individual versus group) can indicate to

Dunn & Dunn Productivity Environmental Preference Survey (PEPS)

3 The five learning style models (instruments) were the Kobl Learning Style Inventory (LSI), the Gregor Style Delineator (GSD), the VARK Learning Style (Visual, Aural, Read/Write, and Kinesthetic), the Felder-Silverman Index of Learning Styles (ILS), and the

students that the instructor does understand the diversity of their learning preferences. Variety of teaching methods “may well be the missing spice of good teaching and more enthusiastic learning” (Becker and Watts, 1995, p. 699).

The third thread in this literature concentrates on the advantages and disadvantages of individual (competitive) versus group (collaborative) learning. Upon graduation many students will find that their jobs require them to work together with others as a team to reach a stated goal. In a comprehensive review of the literature on student teams, Hansen (2006) found that over 80 percent of organizations in the workplace use a team approach to solving problems. Knowledge about a subject area is necessary, but not sufficient to make progress in a career. Other skills such as communicating clearly, relating well with others, and solving problems in a group context, are needed. Rassuli and Manzer (2005) have argued that the superiority of the cooperative learning method is well established. Hansen’s (2006) review of the literature on teams indicated that the learning-by-doing group approach improves comprehension and retention, increases student motivation, and develops critical thinking, as well as strengthening communication and interpersonal skills.

With all of these positive by-products of team learning, why is its use on campuses limited? Becker and Watts (1995) point out that one reason might be that instructors are more comfortable with the lecture approach, since it fits both their learning and teaching styles. Changing styles would involve a high start-up cost. Another reason might be that professors who have tried a team approach were disappointed with the results. The literature is clear that the instructor must invest additional time and effort to make a team learning environment effective. Instructors must clearly explain the expected benefits of team learning, assign specific tasks, reward individual effort (effectively penalizing the ‘free riders’), and closely monitor the progress of each group. I evaluated students based on their participation in the team meetings and the full Cabinet meeting. Those that attended every meeting received a quiz grade of 100 percent. Points were deducted for failure to attend, providing some disincentive to the free riders. (For more details, see Hansen (2006) who provides a list of 10 best-practice suggestions to improve the performance of student teams.)

Fiscal Policy Project

Based on the above education literature, students could learn more economics if they – as a group – were more actively engaged. While there may be numerous ways to foster active student engagement, (e.g., experiments in market behavior), the engagement should ideally focus on course content that will be relevant in students’ lives after college. One of the most important topics covered in a Principles of Macroeconomics course is policy formulation, specifically fiscal and monetary policy. Information about various macroeconomic policies is regularly reported in the financial press (the Business Section of local papers, the *Wall Street Journal*, or the British-based *Economist* weekly magazine), as well as in the national news on TV. This news may include the latest pronouncements from the Federal Reserve Bank (Fed) Chairman, or what some policymaker has said about the growing federal budget deficit, with implications for tax increases and/or expenditure reductions. Informed citizens should be aware of the various policy proposals and able to evaluate whether these proposals might affect them – either positively or negatively. What could be more relevant for a Principles of Macroeconomics class than to simulate a meeting of policymakers as they attempt to resolve a fiscal policy crisis? Should the government reduce spending, or raise taxes, or do some combination; and if a combination, how should the burden of the belt tightening be distributed across government agencies?

The Current Economic Conditions

One option is to give students data on the economic conditions (e.g., low growth rate, high inflation, large fiscal deficit, etc.) of a fictional country. Another, more concrete, option is to give students an actual country undergoing a fiscal crisis. For example, a *Wall Street Journal* article on Hungary (“Turmoil in Hungary Spotlights Trouble in Eastern Europe,” 9/21/2006) described in detail Hungary’s large twin deficits (budget and current account). This article along with the web page of the International Monetary Fund (IMF), where students can find the IMF’s Public Information Notice (PIN) on Hungary (“IMF Executive Board Concludes 2006 article IV Consultation with Hungary,” #06/118, 10/20/2006), provide sufficient detail. With this information and their knowledge of macroeconomics, each team of students is asked to formulate their own fiscal policy to reduce Hungary’s economic turmoil. (See Appendix I for the initial set of instructions to students.)

The Various Ministries of The Cabinet

Each team of students acts as a government ministry (e.g., Finance, Education, Health, Commerce, Labor, etc.). The Ministry of Finance (a combination of the Treasury Department and the Office of Management and Budget in the U.S.) plays a key role since it is in charge of the government's budget, both expenditures and revenue. This team must make the tough policy decisions regarding which ministries will suffer budget reductions. They must also consider tax increase, such as an increase in taxes on wages, which would undoubtedly elicit a response from the Ministry of Labor. Every change in policy that they propose to the full Cabinet must be based on sound economic reasoning to counter any perception among the ministers that the specific cuts proposed are political in nature.

In the first meeting of the teams, the students get to know the other members of the team, talk about the role of their Ministry, and begin making a list of what their Ministry does. In the second meeting, the teams discuss the *Wall Street Journal* article and explore the current story of their country's economy as told by the available data. In the next meeting, the ministries discuss how the current economic conditions might affect the operations of their Ministry. Each team constructs a list of potential positive and negative effects on their Ministry from the current economic situation.

As the meetings continue, the teams are asked to anticipate what the Ministry of Finance may propose and to draft their Ministry's arguments either for or against the proposals that the Ministry of Finance might make to reduce the deficit (expenditure reductions of specific programs and/or specific tax increases). While the Ministry of Finance formulates its own set of proposals, I coach them to make sure that most of the other Ministries are affected. After 5-7 team meetings, the respective Ministries are ready for the full Cabinet meeting.

The Cabinet Meeting

Each Ministry (team) selects their Minister who will sit at the table, but the other team members will sit behind their Minister to provide helpful comments (similar to the way Senate staffers sit behind their Senator during Congressional hearings).

The instructor plays the role of the Prime Minister, he or she calls the meeting to order and explains the structure of the meeting, including the amount of time each speaker has (Pernecky, 1997). Then the Minister of Fi-

nance begins by presenting (i) an analysis of the current situation, and (ii) a set of policy options [3-5 minutes]. We then place the list of policy options on the overhead projector for all to see. The members of the cabinet have 3 minutes to present their response to the Finance Ministry's policy proposals. It is up to each Minister to specify any other relevant information (e.g., quantitative) with regard to current economic activity (the other information should be relevant, but does not have to be factual). After each Minister has given his or her response, the Finance Minister has the option to respond; and then the floor is open to a general discussion and debate, where any student can make a contribution. Some researchers argue that intellectual conflict can be an effective teaching tool because the students can develop and shape their own knowledge (Johnson, Johnson, and Smith, 2000).

By the end of the meeting, the full Cabinet has reached a consensus on the way forward. Usually the Finance Ministry modifies its initial proposals and spreads the budget cuts around the other ministries. The strongest opposition to expenditure cuts has usually come from ministries that provide social programs. The counter argument from the Ministry of Finance is that our country had been a socialist country, but we must move to a market-based economy. Our social subsidies were too large and must be reduced so that our country can compete globally. Eventually the Ministers responsible for providing social programs agree that some cuts are in order to improve the overall performance of the economy, but they provide counter proposals that lessen the hardship that their stakeholders would have to endure. This exchange of viewpoints allows the students to explore components of their higher order thinking – analysis, synthesis, and evaluation (Vo and Morris, 2006).

Students' Reactions and Conclusions

In the next class session we discuss what went on during the Cabinet meeting. Students have said that the exercise was helpful in showing them how fiscal policy is formulated. Generally, the class became more alert and engaged in the ensuing lectures, as if economics all of a sudden became more relevant. Unfortunately, this type of class project can not be undertaken until late in the semester after we have constructed the basic aggregate demand and aggregate supply model, and covered both monetary and fiscal policy. (Because Principles of Macroeconomics is a course that continually builds upon the information of the previous class, it is not possible to attempt a fiscal policy project until a sound foundation has been laid.) In one small class where we moved

through the material quickly, we followed this format to hold a mock meeting of the Federal Reserve Bank's Open Market Committee to discuss monetary policy options.

One enthusiastic student, who had a strong preference for an active experiential approach to learning, told me that she could not 'get it' from reading the book and attending lectures. But the cabinet meeting made fiscal policy formulation alive and real for her. It provided the catalyst for her to develop a deeper understanding of macroeconomics.

On the written course evaluations students stated that they liked the cabinet meeting, some said the project was helpful, others were more specific in stating that the project increased their understanding of certain economic concepts, and some suggested that more class time should be set aside for group activities. It may well be the only thing they remember about their Principles of Macroeconomics class when a policy topic comes up at some social gathering in the future, after they have become well-established in their individual careers. They can say that they learned about the complexities of economic policy formulation by actually doing it.

The fiscal policy project, while not a panacea, has been an effective teaching method for many students in my classes, and has several advantages based on the student engagement literature. First, the project allowed students to become more actively involved in their learning of dry economic concepts. Second, the project, allowed them to explore learning styles that differ from the traditional 'lecture and note-taking' style of most college classrooms. Third, the project allowed them to experience a team (collaborative) approach to learning where they teach themselves. Also, the actual Cabinet meeting reinforced these advantages of the project by creating an intellectual conflict and challenging students to use higher order thinking.

In more general terms, this model of analyzing a set of data in teams and then meeting to formulate policy could be incorporated into other economic courses where the economic effects of government policies are covered. It could also be adapted for certain political science courses, or even business courses where the setting could be a Board Meeting to discuss the merits of a change in strategy, given a sudden unfavorable turn of events.

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APPENDIX I

Principles of Macroeconomics Fiscal Policy Project

Suppose you work for the government of Hungary. (We will assign ministries in class.) The current economic situation in Hungary is the following:

- The **unemployment rate (u)** has started to increase from 6.1% in 2004 to 7.4 % projected for 2006

- Tax revenues (T) have decreased, but government expenditures have remained relatively constant. This has produced a budget deficit $[(T - G) < 0]$, which dropped over the 2002 – 2004 period but has grown from around 5.0% of GDP in 2004 to a projected 10.7% of GDP for 2006. Moreover the deficit is being financed through increased government borrowing.
- Economic growth (g), while positive, has dropped from 5.2% in 2004 to a projected 3.6% for 2006.
- Inflation (π) – measured by the CPI – has remained relatively low and steady (3.6%), but the Producer Price Index (PPI) has exhibited a slight increase in the last two months.

The Prime Minister has asked the Minister of Finance to present policy options in a meeting with the full cabinet. The Finance Minister will provide [3-5 minutes] the cabinet:

- (i) an analysis of the current situation, and
- (ii) a set of policy options.

The members of the cabinet will respond [3 minutes] to the Finance Minister's presentation, based on the perspective of the ministry that they head.

The Finance Minister has the option to respond; and then the floor is open to a general discussion.

Note: it is up to each Minister to specify any other relevant information (e.g., quantitative) with regard to current economic activity.

NEVER UNDERESTIMATE THE POWER OF CASH: EXTRINSIC REWARDS IN THE CLASSROOM

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ABSTRACT:

Goal theorists support extrinsic reward systems and lament the fact that such rewards are not often present in the classroom. This paper presents a monetary reward system that has been used in both theory-based and practical application classes. The system has benefited both students and instructors by increasing attendance, enhancing learning, and fostering class camaraderie. Implementation steps, student and instructor benefits, and caveats are explored.

Introduction

How many times have we heard professors lament, “they’re just memorizing the material; they’re not actually learning it!” Many students are more interested in their grades than actually learning the material (Seifert, 2004). This causes a problem for both instructors and students. A student who simply memorizes the information given in lower-level classes may find it difficult to apply lower-level competencies to upper-divisional work. Professors teaching advanced or interdisciplinary classes become frustrated because they must waste time covering material the student should already know. So how does one motivate students to learn rather than memorize?

There has long been a debate in education as to the effectiveness of extrinsic rewards: some arguing that grades should be enough, while others disagree and feel that external rewards are needed. While good arguments may be made on both sides of the issue, it is possible that the question is more complex than one of simply offering or not offering extrinsic rewards. The successful use of extrinsic rewards may ultimately depend upon what purpose grades serve (Norcross, Horrocks & Stevenson, 1989). The research indicates grades may be used in one of two ways: completion of performance goals or mastery of goals.

Grades given for performance-oriented goals (also called ego or ability goals) are generally based on a bell curve. They are seen as a zero sum game: if one student excels then another must fail. Performance-oriented

goals focus on the outcome rather than the process, and students feel pressure to compete on the basis of grades and social implications. Students pursuing performance goals, in general, tend to worry more about failure than success (Covington, 2000; Seifert, 2004; Shim & Ryan, 2005).

On the other hand, grades given for mastery goals are based on individual achievement and improvement, such as how a student handles a challenge and how quickly a student becomes proficient in new tasks (Ames, 1992; Maehr & Midgley, 1991). Such grades are independent of other students’ grades, and they are based on an equity paradigm, rather than zero sum. As students are no longer competing for grades, they are encouraged to work together and to support each other. A mastery orientation focuses on the process of learning rather than the actual outcomes (Brophy, 2005; Seifert, 2004) and proponents of goal theory believe that a scarceness of rewards in the classroom actually hinders learning.

In the past, grades were primarily used as indicators of success in performance-oriented goals. However, a more recent body of research supports the move from grades that reflect performance orientation to those that indicate mastery (e.g., Covington, 2000; Seifert, 2004; Shim & Ryan, 2005). Students with performance-focused goals direct their efforts more toward avoiding failure than toward attaining success (Covington, 2000). Norcross et al. discovered in their survey of students and professors at two universities in the northeastern United States that 56 percent of students and 28 percent of faculty agreed that extra credit should be available to all

students in the class regardless of their grade standing. The suitability of using rewards, therefore, should be based on the purpose grades serve and not on the grade itself. It also seems to be indicated when a mastery goal focus is taken (Norcross et al., 1989).

Furthermore, goal theory, taken to the extreme, would allow students to determine what grades they would like to earn and work toward these goals by accruing points for various activities (Covington, 1998; Covington & Omelich, 1984). Thus, it is more likely that rewards will be successful if this reward system is meaningful to the students.

Rewards may come in many forms, ranging from simple verbal praise to extra credit to certificates (Covington, 2000; Davis, Winsler & Middleton, 2006). How does one determine what type of rewards might be meaningful? While this may be difficult for other academic disciplines, faculty in colleges of business will find the answer simple. In general, business students are more competitive in nature than those whose interests lie in other academic areas. Many business students see a degree as the first step to monetary success (Loo, 2001). It would make sense, then, that a monetary system of rewards would be appropriate for business students. This paper will discuss the use of a monetary system in a collegiate setting; its implementation, benefits, unforeseen consequences, and implications in the classroom.

The Monetary System

The monetary system described below has been used in approximately a dozen classes over a six-year period in two different universities and in several different courses. In our classes, we had several group exercises. To keep group member from forming attachments or freeloading, we changed membership constantly.

The currency used was referred to as either “Benny Bucks” or “Buzzy Bucks” (determined by the university’s mascot) and it was symbolized by using a lower-case Greek beta (β). Therefore, throughout the paper, we will refer to the exchange medium as “currency,” “money,” or “bucks.”

Introducing a monetary system into the classroom takes a bit of preparation on the part of the instructor. However, as we will discuss in the following sections, the benefits of such a system can be immense. As can be imagined, several unforeseen consequences occurred throughout the semesters the system was used. These will also be discussed. Finally, some caveats concerning the use of a monetary system will be presented.

Implementation in Upper-divisional Classes

The implementation of a monetary system has five steps: creating the physical currency; determining how students may earn money; introducing the monetary system to the class; deciding how the money will be distributed; and choosing how students may use their money.

Creation

One of the first things the instructor must determine is what to call the exchange medium. As noted above, we called ours “bucks,” but the instructor should use his or her imagination when determining the name to be used. The name in itself, however, should assist with student buy-in. We accomplished this by including the mascot’s name, but the name of the instructor, college, university, or any other symbol that means something to the students would be appropriate.

The next step is to determine what denominations are needed. We started with $\beta 1$, $\beta 3$, $\beta 5$, and $\beta 10$. Over time, we decided we had to add a $\beta 25$ denomination as well. Again, this is a decision that is made by the instructor.

Finally, the instructor must create the physical currency. Creating the bucks may be as simple or complex as the instructor wishes. At one university, we used different “presidential” pictures (in the middle of the buck) for each denomination and at the other, we used the same picture on all denominations. These were, in some way, related to the class, the college, or the university. While we did not put different serial numbers on each bill, we did use different numbers on each type of bill. In general, the bills looked like Monopoly® money. Finally, in order to increase class participation we included the class name on the bills. Each denomination was printed on a separate color paper. A sample of the bucks used in one of our classes is provided below.



Introducing the System

The instructor has to decide how the system will be introduced to the class. This may be handled many ways. In our classes, we added a section to our syllabi titled “Buzzy Bucks,” which gave the basic information about how the monetary system would work. Additionally, it asked students to e-mail the instructor saying, “I want my Buzzy Bucks!”

The first day of class, as part of the introduction, we briefly went over the syllabus, including topics such as grades and attendance. We did not specifically discuss the “Buzzy Bucks” section of the syllabus in class. Instead, we asked the students to completely read the syllabus.

During the second class session, we asked each student who sent us an e-mail to come to the front of the class. At this point, we asked if they knew why they had been singled out. Inevitably, one or more of them will say, “Because we read the syllabus.” We made a big show of presenting these students with their money, and then we explained the system to the entire class. We discussed ways in which the students could earn bucks, and how they could spend them.

Earning Bucks

The first thing that must be noted is that bucks and grades should not be confused. If an item is to be graded, a student should not also be allowed to earn bucks for it! Thus, one of the hardest parts of implementing a monetary system is deciding how students may earn money. We have recapped the items we currently reward in the table below and will discuss how each works in our classes.

When first setting up our system, we determined that bucks would be used for perfect attendance, participation in normal class activities, and review sessions. The definition of “perfect attendance” can be determined by the instructor. For example, we allowed for excused absences. Another suggestion would be to use a sliding scale; so that students start with their original amount of money, but bucks are deducted for each absence.

The classes in which we used the monetary system had several experiential learning exercise components¹. Students were rewarded for either individual or group performance. Sometimes all groups would earn the same amount for simply participating; other times the rewards would be based upon how well the group performed.

During some of the exam review sessions, individual students were asked questions that might have appeared on the exam. Correct answers were rewarded based upon the complexity of the question. In other cases, students were placed in teams. Review sessions were conducted with games such as Jeopardy!®, board games, or poker. The rewards earned by the team were split among the team members.

Eventually, we were also rewarding students who had well thought-out answers or comments during the class discussions. This worked especially well in classes that had many students that were either shy or afraid to offer opinions or answers.

Another area in which we started awarding bucks was for volunteerism. Students were awarded a small amount for volunteering to do things in class or for being the first to volunteer. For example, in one class students were required to create a web site. The student who volunteered first to display the assignment was awarded an additional $\beta 3$.

¹ For examples, see Leonard & Steerey, 2007 and Fryxell & Dooley, 1997.

TABLE 1 PAYOFF TABLE	
Item	Payoff
Perfect Attendance	$\beta 5$
Unsolicited supplemental information	$\beta 3 - \beta 5$
Normal participation in experiential exercises and classroom games	Depends upon the exercise $\beta 5 - \beta 20$
The first to volunteer	$\beta 1$
Well considered or outstanding answers	$\beta 1 - \beta 3$
Exam review sessions	Depends upon the review style $\beta 5 - \beta 20$
Impromptu presentations	$\beta 1 - \beta 3$

We also found that we occasionally received unsolicited papers from students who found a subject matter interesting. If the paper was on topic and well prepared, we would award a couple of bucks. The same thing happened with impromptu presentations. Students would find an assignment especially appealing, and they would want to share their thoughts, feelings, and findings with the class. These too earned a small reward.

Finally, we discovered that occasionally additional assignments were needed in class, usually to address problems arising with specific topics. Students were rewarded with bucks rather than grades. This avoided changing the original grading plan.

The primary thing we, as instructors, learned was to be flexible; each class is different.

Distributing the Wealth

Three major issues are associated with distributing the currency. The first is “immediate reward.” Whenever possible, payment should be made on the spot. In cases where this is not possible (e.g., where an additional assignment must be scored), payout should be made as soon as possible (Eisner, 2005). It is important to remember that currency is an extrinsic reward. It is tangible rather than indirect. It is a physical exchange between instructor and students.

Actual presentation is the second issue. In an immediate reward situation, the bills are presented right away. When bucks are provided later, we have found that students prefer larger stacks of smaller bills. Additionally, if we are making delayed rewards, we always place the smallest bills on top so that other students do not know exactly how many bucks were received. One of the reasons we use smaller bills is for the “excitement” factor: six $\beta 1$ bills make a bigger stack than two $\beta 3$ bills.

The third and final issue is distribution of the currency. It is important that students understand that they competing for their own “Buzzy Bucks.” In our classes, we make a big deal about the reward process. In order to keep student interest, we are very careful not to make students look silly for their enthusiasm. For example, we have found during the initial presentation of awarding money for reading the syllabus that the students called to the front of the room are both proud and embarrassed. At this point, we explain the whole idea of the monetary system and reassure the other students that they will have plenty of opportunities to earn bucks.

Spending the money

Now that students have earned their money, the instructor must determine what can be purchased. This is up to the instructor.

Exams. In our classes, students stockpile bucks in order to buy questions on the exams. We have it set up so that students must buy specific questions and not simply add points to the overall exam. There are four ways in which they may do this: 1) buy an answer for a multiple-choice question; 2) reduce the number of answer choices on a multiple-choice question; 3) buy the entire short-answer or essay question; or 4) buy insurance on a short-answer or essay question.

For the midterm exam, the price is generally a buck a point. Our multiple-choice questions are worth two points, so a correct answer would cost $\beta 2$. In the second scenario, we would charge $\beta 1$ to reduce the number of possible answers to two (e.g., from a choice of A, B, C, and D to a choice of A and C). The third scenario works much like the first. If a student wants to buy an entire essay question worth five points, it will cost $\beta 5$. In the final scenario, essay questions are worth various points, so the student may buy insurance to increase the odds of getting the question correct. For example, there is a short-answer question on the exam, “Name Porter’s Five Forces of Competition.” Each force is worth one point. If the student only remembers three, that student may buy two additional points at a cost of $\beta 2$.

The final exam works the same way; however, prices are generally higher due to inflation². Throughout the classes in which we have used monetary systems, students generally want to hoard their money in order to use it on the final exam. Yes, students can completely buy out of the final exam³.

Auctions. Another way that we allow students to spend their money is through an online auction. When we go to conferences, we pick up promotional items from the booksellers. Some of these are very nice, such as coffee cups with logos, while others are simple, such as embossed pens and pencils.

We create a simple web form with pictures of the items along with “the minimum suggested bid.” Students fill out the form, including the amount of their bids. We announce to the class that bids have been made and en-

² See “Caveats” below for further discussion on inflation.
³ See “Caveats” below for further discussion on implications on grades.

courage students to visit the auction site. After a week, the high bidder “wins” the item. Because the auction site is entertaining, we have included a few silly items such as 8 x 10 photos of the instructor. We actually had quite a bidding war on one of these.

Other Purchases. While our students have been limited to buying exam answers and auction items, several other suggestions have been made. For example, students are not allowed to buy quizzes or quiz answers since they are allowed to drop the lowest quiz grade. However, it would be simple to allow students to buy additional points for their lowest quiz score. Additionally, it would be appropriate to allow students to buy a single homework grade. Almost anything that would qualify for extra credit would also qualify for bucks. We discourage instructors from allowing students to purchase an overall grade. We always require our students to apply bucks to a specific item. However, the instructor decides how the monetary system will be applied.

Benefits

The benefits of using a monetary reward system in the classroom are incredible! The first thing we accomplished was to shift the focus of the students away from grades to earning bucks. They shifted from performance-oriented to mastery goals, and from avoiding failure to pursuing success. This, in turn, motivated students to learn rather than memorize the information. Thus, our primary goal in instituting the monetary system was achieved.

However, if we only achieved the benefits discussed alone, it would have been enough to implement the system. One of the main benefits we saw was an increase in classroom attendance. Students were never sure when an opportunity to earn money might arise, so they showed up for class. Compared to our classes in which we did not use a monetary system, we saw attendance go from approximately 80 percent to about 95 percent. More than half the students earned bucks for perfect attendance. Obviously, students who come to class will learn more than students who do not attend.

Another benefit was that the monetary system increased participation. Students were more enthusiastic; had fewer concerns about “wrong” answers; an increased propensity to volunteer; and were more willing “to go first” in discussions and presentations.

We saw higher levels of participation, energy, and cooperation in our groups. As mentioned earlier, we changed group membership with every class exercise. This lowered attachment to a specific group. All of this led to

intense class camaraderie, a willingness to work with others. Despite their innate competitiveness, we found that both group and individual competition appeared to be internal rather than against other students or other groups.

In learning, we saw great benefit from using the monetary system. First, we drew the students into the game of learning. As competition with self increased, the students experienced increased personal pride and sense of accomplishment. As instructors, we had the pleasure of dealing with students who paid more attention to detail as they were performing at peak levels. The monetary system also allowed lower performers and non-achievers some relief, and it encouraged higher levels of engagement and learning.

We have also found that, in certain situations, bucks may be used as a feedback mechanism. For example, during an exam review, questions, which are worth from $\beta 1$ to $\beta 3$, are asked of the students. Thus, students are given immediate feedback regarding their answers.

Finally, as mentioned earlier, we found it easy to add assignments as needed without disrupting the grading components in the syllabus.

The Law of Unintended Consequences

Wikipedia defines unintended consequences as “situations where an action results in an outcome that is not (or not only) what is intended.” As often happens in the classroom when students are totally immersed in a given set of circumstances, we encountered several unintended or unforeseen situations.

One of the very first unforeseen situations we encountered involved students losing their money. Since it seemed like an inordinate amount of work for the instructor to keep track of student money and in order to foster responsibility, we handled this by announcing to the class during the introduction phase that it was the student’s responsibility to keep track of their bucks. The instructor would not do so.

One situation that we should have foreseen was inflation. As the students participate in the monetary system, we start to reap the benefits discussed previously. While this is a desirable situation, during the second half of the semester we found ourselves paying for more correct answers, more participation, and more volunteerism. As a result, prices of questions on the final exam were twice the cost of questions on the midterm. We are not sure that inflation can be controlled; however, we did

discuss the phenomenon with our classes. This was an impromptu economics lesson.

Another unforeseen consequence of using the monetary system was that students started providing us with unsolicited work. Students found topics that were interesting and often did additional personal research in the area. Several times this resulted in students providing us with papers. For example, we have been given lists of web sites and written papers. While these were given freely with no solicitation and no promise of reward, we do pay a small amount for the effort.

One semester, without the instructors' knowledge, the students created an entire economy. This primarily consisted of trading bucks for the services of another student. For example, we have a stiff spelling and grammar policy; some students would pay other students with bucks to proofread and correct their papers. We also saw high achieving students studying with lower performing classmates. The low achievers were encouraged with bucks by the higher performing students in much the same way the instructor did. At the time, we had no idea this was happening. Since this first occurred, we have neither encouraged nor discouraged or even mentioned the black market economy; we simply ignore it.

Another issue we had not foreseen was the possibility of counterfeiting. Although this never actually occurred in one of our classes, the possibility arose. We had a student who worked for a printing company. During the semester, he had received at least one buck of each denomination. He took these to work and printed twenty pages of each type. Being honest and having a good rapport with the instructor, the student made a joke of this and gave the counterfeit bills to the instructor, who is currently using them in her class. There was a slight difference in the paper color of the counterfeit bills, so we are sure we would have caught this fraud. However, since the paper we use is a standard office supply color and students have access to copiers and scanners, we keep a rough idea of how much money we have in general circulation.

The final consequence we encountered when using our monetary system was delightful. We found we had to make more complex and difficult exams. As attendance, participation, and learning increased, we found that the exams we had used in classes without a monetary system were simply too easy.

Implementation in Lower-divisional Classes

The classes in which we used monetary systems have primarily been theoretical in nature and consisted predominantly of seniors. As we proceeded with this article, we were intending to implement the system in a lower-division course during the next semester. However, we decided to implement in a lower-division course right after spring break.

In this course, an e-mail was sent to the students instructing them about the bucks and asked for a response to the message. The students accepted the monetary system immediately. After the students were informed about the monetary system, they were asked to meet in groups to make recommendations on the benefits and use of the bucks.

Student comments supported the monetary system. One student made this statement: "While these seem juvenile, everyone likes rewards." Another student stated that the monetary system rewarded you for learning and those students who do not come to class will not learn. All students understood the idea of "Buying." Several students had great ideas about "Buying." However, their recommended prices were much too low.

After using the monetary system for a few days, another student commented that class attendance had increased tremendously. Since this is a lower-division course, many students attended sporadically. With the use of the monetary system, class attendance increased by 50 percent. Students became more engaged and the atmosphere of the class was more relaxed. This lower-division class saw many of the benefits discussed previously. Students were able to purchase selected assignments, extra credit assignments, and bonus points. Students were also rewarded for excellent performance on a course section post-test. We intend to continue the use of this monetary system in our lower-division courses next semester.

Caveats

The use of the monetary system is not for everyone. First and foremost, the instructor must be comfortable with the idea. Setting up a monetary system takes time and effort in the beginning. The instructor must be willing to put forth the energy needed to make the system successful. The instructor must also be flexible with respect to inflation and be creative when considering purchasing alternatives.

The monetary system must also work with the classroom dynamics. We found that class size, age, and class makeup of the students had no bearing on the success. The culture of the class and the teaching style (the instructor must have a mastery goal orientation), formality (or informality) of the classroom, and the willingness of students to work together is important.

As we mentioned several times in the paper, our classes rely heavily on practical and experiential exercises. We feel that this format gives the students ample opportunities to earn money throughout the semester. However, an instructor should not discount using a monetary system simply because he or she does not follow our model. Obviously, the instructor may reward other types of participation and attendance in lieu of exercise participation or decrease the cost of exam points.

Finally, the effect on grades must be considered. While the monetary system is designed to take the students' focus off grades directly, ultimately there will be an impact. First, in the instances where students had enough money to buy the final exam, all were "A" students when exam scores were discounted. Most had perfect attendance and all had participated seriously in both the group and individual classroom activities. In our estimation, the students would have earned an "A" on the exams whether the monetary system had been in play or not. We feel this is in no way a different from an instructor who allows students who are happy with their grades at the point of the final to skip the exam. Additionally, students who are not high achievers, but have worked hard and learned, are rewarded for their effort.

Grades could be less affected if an instructor charged more for points on the exams or allowed students to use their money for items other than exam points (e.g., quizzes or homework).

Conclusion

In this paper, we have outlined the use of the monetary system to increase student involvement, enhance learning (as opposed to memorization), and decrease individual competition for grades. Through the years we have had to adapt the system to take into account several unforeseen consequences and changing classroom dynamics. While the use of the monetary system is not for everyone, instructors with a mastery goal orientation and a little creativity should be able to reap great benefits for both the instructors and students. Remember that what an instructor rewards is not as important as the fact that the instructor does reward – and that the

ultimate impact on grades is entirely in the hands of the instructor.

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ONLINE EDUCATION AS A DISRUPTIVE TECHNOLOGY: A THEORETICAL PERSPECTIVE

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ABSTRACT

The effects of technological change on industries, organizations, and individuals are far-reaching and extensive. However, the traditional structure of the higher education industry has created an extremely stable environment that has allowed traditional institutions of higher education to remain relatively immune to the consequences of competitive technological change. This paper argues that the emergence of internet-delivered distance education is creating a disruption in certain segments of the traditional higher education market. A contingency theory is presented that describes organization, market, and product conditions that make certain areas of the institution susceptible to disruption. This offers a different perspective from the stream of technological change literature that contends innovations are either disruptive or not. This theory is unique in that it links streams of literature in technological change, organizational theory, and higher education. Situations in which internet delivered academic degree programs may enhance the competencies of the traditional university as well as situations in which such competencies may be disrupted are analyzed and discussed.

Introduction

Since Tushman and Anderson's (1986) examination of technological discontinuities as either "competence enhancing" (1986: 442) or "competence destroying" (1986: 442) a stream of research has emerged that focuses on the degree of disruption that technological innovations cause to established firms in an industry (e.g. Christensen, 1997, Daneels 2004, Papp & Katz 2004, Weisenbach-Keller & Shanklin 2005, Utterback & Acee 2005). This paper builds on this by assessing internet delivered academic degree programs' disruptive threat to traditional higher education.

Christensen (1997) describes disruptive technologies as innovations that enter a market as low-cost, under-performers targeted at small segments. As under-performers, disruptive technologies attract small niche markets that are typically composed of over-served customers that demand less and/or different product features than demanded by customers of the mainstream market. For example, traditional institutions of higher education offer many services and amenities to students (e.g. housing, meal plans, wellness centers, health services, recreation, varsity athletics, etc.) that are of little or no interest to a certain segment of the student population. Students that do not engage in these types of services and are only interested in the institution's academic function (e.g. going to class, interacting with faculty and other students, etc.) would be classified as over-served. As these over-served segments expand, established technologies are threatened and eventually replaced. I argue in this paper that traditional higher education is begin-

ning to experience such a disruption. For-profit and not-for-profit providers of internet delivered academic degree programs are quickly emerging and students are responding. Evidence of this growth is found in a survey conducted by Allan and Seaman (2005) that found that "overall online enrollment (of students taking one or more online course) increased from 1.98 million in 2003 to 2.35 million 2004" (Allen & Seaman, 2005: 3). The presence of this alternate form of delivery is likely to be more disruptive in some areas of higher education than others. The purpose of this paper is to evaluate situations in which internet delivered academic degree programs may enhance the competencies of the traditional university as well as situations in which such competencies may be disrupted.

This paper contributes to the literature by offering a contingency theory that attempts to predict and identify areas within traditional higher education at the greatest risk of being disrupted by the emergence of internet delivered academic degree programs. Characteristics of individual academic departments and institutions are examined. This offers a different perspective from the stream of technological change literature by suggesting that technological innovations can be both competence enhancing and disruptive in the same industry. This contingency view of the Tushman and Anderson (1986) view provides a unique perspective to this area of research.

This paper is organized as follows. First, a review of past literature on technological discontinuities, with par-

ticular attention given to disruption will be provided. Next, technological disruption will be described in terms of traditional higher education and a set of propositions will be offered that identify areas of the institution where internet delivered academic degree programs are likely to be competence enhancers and others where they are likely to be competence destroyers. The theoretical framework will focus on degree programs where the internet is the primary delivery medium. Allen and Seaman (2005) report a "pattern of broad penetration" (2005: 6) in these types of programs. Their study found that "forty-four percent of schools offering face-to-face Master's programs also offer Master's programs online" (2004: 6). Additionally, they report that thirty-four percent of those schools offering Master's degrees also offer online bachelor degree programs (Allen & Seaman, 2005: 7).

The sporadic offering of courses via the internet or courses where students meet face-to-face with instructors on the main campus or at satellite campuses are not included in the scope of this paper. For the purposes of this paper, programs where students have the ability to earn an entire degree via the internet, meaning there is no on-campus requirement and at least 80% of each courses' content can be completed by the student asynchronously, will be considered. It is important to note that the focus of this paper is on the delivery method (via the internet) and not the pedagogical method (e.g. text, video, etc.). As in a traditional, on-campus setting, different online instructors will employ different pedagogical methods to deliver course material to students. An example of this type of program is Murray State University's online bachelor level programs in Business Administration and Telecommunications Systems Management. These two degrees can be earned completely via the internet, meaning students never have to physically visit campus. The entire four-year curriculum is offered, in conjunction with the Kentucky Community and Technical College System, via the internet. Instructors in these two programs use various techniques to present class material to students. Some courses are primarily text based and asynchronous, meaning students can proceed through the course at their own pace. Other courses have synchronous components (less than 20% of total class requirement) that require students to access course materials and/or interact with the instructor or other students (via the internet) at specific times. Some courses incorporate various technical tools such as video and/or audio clips of lectures, Microsoft PowerPoint notes, and simulations. Each of these is included in the scope of this paper. Finally, the paper will conclude with suggestions for areas of future research and

implications for practice targeted at decision makers in higher education.

Literature Review

Revising and applying a theory based on technological innovation and its effects on a traditionally non-technical industry such as higher education requires grounding in the literature from both areas. Although a substantial amount of work has been done in each separately, little work has been done to link the two. In this section, I review streams of literature in both areas and identify associations between the two by presenting the fundamental perspectives of work in technological innovation (Tushman & Anderson, 1986; Christensen, 1997) and an emerging stream in higher education that examines the changing competitive environment in the industry (Baer, 1998; Katz & Associates, 1999; Armstrong 2001).

Technological innovation: enhancement and disruption

Organizational and industry effects associated with technological innovation are a major topic of interest in scholarly as well as practical circles. Much of the work done in this area in the past twenty years can be traced back to Tushman and Anderson's classification of discontinuities caused by technological change as being either "competence enhancing" (1986: 442) or "competence destroying" (1986: 442). In this paper, competencies are examined at the academic department and institutional levels. In terms of academic departments, competencies focus on the actual delivery of curriculum to students. At the institutional level, competencies will refer to those administrative services (e.g. recruitment, registration, etc.) that serve as the interface between the institution and external stakeholders. Competence enhancing discontinuities can be recognized as incrementally developed new technologies that serve to replace older technologies. Competence enhancing technologies are typically introduced by established firms in the industry and increase the performance of their products and/or processes. In this context, internet delivered academic programs will most likely enhance competencies of process at the academic department level. For example, an instructor's expertise in course content will not change; however, the process of delivering this knowledge will incrementally evolve and eventually become more efficient. After instructors gain experience delivering material via the internet, the process will become more efficient and enhance the teaching competencies of the instructor and the offerings of the academic department (Lee & Busch, 2005).

Competence destroying technologies can be recognized by their ability to “alter the set of relevant competencies within a product class” (Tushman & Anderson, 1986: 442). Their development requires a new knowledge set not already possessed by the organization and are introduced by firms new to the industry. In terms of higher education, online universities such as the University of Phoenix are poised to become competence destroyers by attracting students that desire to pursue an education, but are unable to physically attend class. Evidence of the impact that this one online university is having is provided through the enrollment numbers the institution reports in its 2005 Factbook. According to the University of Phoenix’s Factbook 2005, “Today, more than 230,000 busy professionals are earning their college degrees at University of Phoenix” (2005: 3).

Christensen’s book, *The Innovator’s Dilemma* (1997), offers a revised perspective on competence destroying technologies and labels them as “disruptive technologies” (Christensen, 1997). A review of the literature in the area of disruptive technology yielded several definitions for disruptive technology. A consensus definition has yet to be achieved, although many scholars such as Danneels (2004), Papp & Katz (2004), Utterback & Acee 2005, and Weisenbach-Keller & Shanklin (2005) have addressed the issue. Regardless of the form, each definition identified is a derivative of Christensen’s original version. Christensen defines disruptive technology as, “innovations that result in worse product performance, at least in the near-term” (1997: xviii). For the purposes of this paper, I will draw from Christensen’s original view of disruptive technologies as under-performing when compared to the established industry technology and targeted at small segments of the customer market. The initial development costs of faculty time and training associated with internet delivered degree programs will result in the early course offerings to be of lesser quality than those offered by the same faculty in the traditional classroom. This decrease in quality will be offset by targeting the product at convenience demanding segments of the market. In short, students who are unable to physical attend classes on campus are willing to sacrifice quality for convenience.

Weisenbach-Keller and Shanklin (2005) identify certain factors that enable the entrance of disruptive technologies into an industry. They group these factors into the categories of incumbent technology characteristics, incumbent firm characteristics, customer base characteristics, entrant firm characteristics, and nascent technology characteristics. (Weisenbach-Keller & Shanklin, 2005) They contend certain combinations of these elements create what they refer to as a “perfect storm for

disruptive technology,” meaning these conditions expose industries to the successful entry of a new technology. (Weisenbach-Keller & Shanklin, 2005) This paper will focus on the incumbent firm characteristics portion of their model due to the previously mentioned growing number of students interested in pursuing degrees via the internet. In terms of internet delivered academic programs, the characteristics of incumbent firms, in some cases lead to competence enhancement and in others lead to competence disruption.

Disruptive Technology in Higher Education

“The real question is not whether higher education will be transformed but rather how and by whom.” (Katz & Associates, 1999: 1) Katz and Associates identify several factors influencing this transformation and predict a bleak future for those institutes of higher education that fail to enact the transformation. “Those that bury their heads in the sand, that rigidly defend the status quo or – even worse – some idyllic vision of a past that never existed, are at a very great risk” (Katz & Associates, 1997: 1). Armstrong (2001) supports this stance by positing, “New types of for-profit and non-profit organizations are beginning to provide competition in targeted segments of higher education” (2001: 479). This statement describes the evolution of the competitive environment in higher education and offers similarities to the Tushman and Anderson (1986) and Christensen (1997) arguments already discussed.

Disruption is often the result of established firms overlooking the potential impact of disruptive technologies. Utterback and Acee (2005) address this issue, “established competitors seldom expect that a disruptive technology will penetrate the core markets of the traditional business” (2005: 3). This is especially true in higher education due to “institutions of higher of higher education collectively valuing highly their stability and their ability to survive for long periods of time without revolutionary change” (Armstrong, 2001: 480). Consequently, incumbent institutions of higher education are in a position to fall victim to what Chandy and Tellis (2000) refer to as “the incumbent’s curse” (2000: 1). Chandy and Tellis explain that “large, incumbent firms rarely introduce radical product innovations,” (2000: 1) and “as a result, radical innovations tend to come from small firms” (2000:1). This suggests that institutions that choose to overlook the growth of internet delivered academic programs are at risk of being disrupted by non-traditional institutions such as the University of Phoenix.

Theoretical Framework

A theoretical framework and propositions are developed in this section to explain the magnitude of higher education competence effects associated with internet delivered academic programs by exploring moderating variables at the institutional and departmental level as illustrated in Figure 1. Specifically, this framework suggests answers to the following questions: under what conditions are internet delivered academic programs competence enhancing and under what conditions are they disruptive? Both levels of analysis will be considered separately.

Institutional Enhancement And Disruption

Any number of factors (e.g. size, funding source, etc.) can be used to classify institutions operating in the higher education industry. Classification by the types of degrees (certificate, associates, baccalaureate, master's, doctoral) offered is perhaps the most widely recognized. Cox (2005) notes the "highly stratified system of education" (2005: 1766) with associate degree granting, community colleges residing at the bottom and doctoral granting, research institutions at the top. As institutions hold positions higher on the educational spectrum, the level of the institution's perceived legitimacy increases. Armstrong (2001) suggests that legitimacy in higher education is achieved through credentialing and reputation. Historically, credentialing and reputation has provided higher education with strong barriers to entry. Credentialing in higher education comes in the form of accreditation. Institutions earn accreditation at the institutional and often the academic department or discipline level. For example, accreditation could be granted by the Commission on Institutions of Higher Education of the North Central Association of Colleges and Schools at the institutional level, and its business school be accredited by AACSB International at the academic department or discipline level. In terms of reputation, Armstrong notes, "The degree or the certificate from a highly-ranked prestigious university is a statement that the holder met very high entrance standards and was able to pass the rigorous courses required by the program" (2001: 484). Several authors in both academic literature (Cox, 2005; Katz & Associates, 1999; Armstrong, 2001; Dolezalek, 2003) and the popular press (U.S. News & World Report, Business Week, The Chronicle of Higher Education) have noted the importance of reputation and legitimacy in relation to internet delivered academic degree programs. Dolezalek (2003) conducted a survey of 239 human resource (HR) professionals that found that "only 40.8 percent of the respondents considered online degrees as credible as traditional degrees" (2003: 30).

Based on these arguments, a logical conclusion can be reached that internet delivered academic degree programs that are offered by institutions that are perceived to have low levels of legitimacy will not be received well by employers. Consequently, community colleges that primarily offer associate degrees and are located at the bottom of the higher education hierarchy are especially susceptible to competition from providers of internet delivered academic programs due to their lack of ability to erect competitive entry barriers based on legitimacy. Additionally, these types of institutions are also vulnerable to more legitimate traditional institutions that have internet delivered academic degree programs as part of their programmatic offerings.

Proposition 1: *As an institution's level of legitimacy, either by credentialing or by reputation, decreases, the level of competence disruption posed by internet-delivered academic degree programs will increase.*

Legitimacy can also be a source of competence enhancement in terms of internet delivered academic programs. Established, traditional universities can leverage the equity associated with reputation and credentials by offering internet delivered academic programs to segments previously ignored. As already mentioned, the more prestigious an institution the greater the perceived value of the degree or certificate earned from the institution. Delivery via the internet will allow institutions to attract from a broader population of students due to the fact that a portion of capable student prospects have life situations (e.g. families to support, physical handicaps, geographically constrained, etc.) that do not allow them to physically attend classes on campus.

Proposition 1a: *As the level of legitimacy of the institution, either by credentialing or by reputation, increases, internet-delivered academic degree programs will become more competence enhancing for institutions possessing higher levels of legitimacy.*

Departmental enhancement and disruption

In this subsection, the theoretical framework is extended to academic department characteristics that create situations of competence enhancement or competence disruption due to the entrance of internet delivered academic programs to the higher education industry. The first argument in this section is an application of propositions 1 and 1a to the academic department level. Those internet delivered academic degree programs that earn professional accreditations such as AACSB Inter-

national will have a higher level of legitimacy than those without accreditation credentials; consequently, the department's competencies of delivery will be enhanced by offering an alternate method of delivery.

Proposition 2: *As the level of legitimacy of the academic department, either by credentials or by reputation, increases, internet-delivered academic degree programs will become more competence enhancing.*

In their chapter in *Dancing with the Devil* (1999) Blustain, Goldstein, and Lozier identify "providing knowledge to the workforce" (1999: 52) and "retooling people for new careers" (1999: 52) as "drivers of education" (1999: 52). Internet delivered academic degree programs are well suited to take advantage of these two drivers. The convenience and flexibility offered by internet delivered academic degree programs are attributes demanded by students who are currently employed in full-time positions. Armstrong (2001) addresses this point, "They (providers of internet delivered academic degree programs) offer benefits such as convenience, flexibility, ability to take courses from a more highly ranked institution, and focus on job-related skills" (2001: 493).

Allen and Seaman found in their study that "42.7% of colleges offering face-to-face business programs also offered a business program online" (2005: 8). Business programs had the highest level of online penetration in the study. Dolezalek (2005) contends internet delivered academic degree programs are beneficial for upwardly mobile people already in a field, rather than those trying to enter a field of work. Students who seek internet delivered academic degree programs are typically motivated by factors of convenience and flexibility and are "primarily interested in the teaching function" (Armstrong, 2001: 493) of the institution. In this sense, internet delivered academic degree programs fit the definition of disruptive technology offered earlier as attracting an over-served market. To the extent that an academic department can offer these over-served customers a program that will assist them in advancing in their current jobs, the department's core competencies will be enhanced. Business programs are well suited to assume this role due to the direct relationship between industry and professional career paths.

Proposition 3: *As the relationship between an academic program and professional advancement increases, the level of competence enhancement posed by internet-delivered academic degree programs will increase.*

Proposition 3a: *As the relationship between an academic program and professional advancement decreases, the level of competence enhancement posed by internet-delivered academic degree programs will decrease.*

The demand and codifiability of curriculum are two important factors to consider when assessing the level of enhancement or disruption of internet delivered academic degree programs in higher education. In this context, the degree of codifiability is the ability to document and easily distribute course content via the internet. For example, problem-based disciplines such as finance or math are more codifiable than disciplines that require the use of labs (e.g. chemistry, biology, etc.) and/or face-to-face hands-on training (e.g. communication, nursing, etc.).

In the Allan and Seaman study (2005), Liberal Arts and Sciences were grouped with General Studies and Humanities to have the second highest level of online penetration (behind business) with 40.2% (2005: 8). Curriculum in many of these areas (English, history, etc.) is highly codifiable, which relates well with internet delivery. Course content that is easily codified, significantly decreases the technological learning curve of online students and online instructors. As the level of codifiability of program course content increases, the technical learning curve associated with development and delivery of internet delivered courses will decrease, which will result in more courses being offered at a lower cost. Established institutions that recognize this and leverage their legitimacy power will experience competence enhancement. Those that fall victim to the incumbent's course already mentioned will experience disruption.

Proposition 4: *As the level of curriculum codifiability increases, development and delivery costs will decrease which will result in an increase in competence enhancement for academic departments that leverage their legitimacy and offer internet delivered academic degree programs.*

Proposition 4a: *As the level of curriculum codifiability increases, development and delivery costs will decrease which will result in an increase in disruption from competitors for academic departments that choose not to leverage their legitimacy and ignore internet delivered academic degree programs.*

Some programs may be codifiable in terms of foundational knowledge, but require a high level of hands-on experience in laboratories with specialized equipment. For example, the foundational knowledge of physics programs is highly codifiable through problems and theory; however, physics also requires a great deal of experiential learning that takes place in expensive laboratories. In these situations, costs will prohibit the efficient delivery of online delivered degree programs. In cases such as this, internet delivered academic degree programs will have no enhancing or disrupting effect.

Proposition 5: *As the level of experiential learning increases, development and delivery costs will increase which will result in a decreasing level of competence enhancement and disruption posed by internet-delivered academic degree programs.*

Discussion and Conclusion

Practical Implications

From a practical perspective, higher education administrators can apply this theory proactively to predict areas at the greatest risk of disruption and pursue opportunities to increase enrollment and serve new markets. One area not addressed in this paper, is the importance of the faculty in this process. Higher education is an extremely unique industry largely in part due to the autonomy provided to its most valuable employees; the faculty. Through this autonomy, great individual innovations are realized, but few are ever institutionalized. This fact poses a problem for those institutions wishing to develop the type of internet delivered academic degree programs described in this paper. It is relatively easy to recruit a few faculty to teach a few courses, but recruiting the faculty required to offer an entire program is much more difficult. Administrators could use the framework provided in this paper to highlight the importance of these types of programs in certain areas.

Future Research

This paper has focused on the internal characteristics that institutions possess. Future research should examine environmental and market conditions that moderate the degree of disruption towards higher education. For example, many providers of internet delivered academic degree programs demographically profile segments of the higher education market in an attempt to target recruitment for internet delivered academic degree programs. It would be interesting to test these profiles to see

if they are representative of the market. Hopefully, this paper encourages further scholarly as well as practical research in these areas.

This paper started by focusing on the enhancing and disrupting characteristics of technological innovations. Theories by Tushman & Anderson (1986) and Christensen (1997) served as the foundation to examine the dual role that internet delivered academic degree programs can play in higher education. Attributes at the level of academic department and institution that either support or resist internet delivered academic degree programs have been examined.

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TEACHING A HYBRID OF ONLINE AND FACE-TO-FACE COURSES

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ABSTRACT

This research compared the outcomes of teaching with a hybrid format to a face-to-face format, for two Business Administration (marketing) courses. The instructor taught the first half of the hybrid course from China, via the Internet, and the second half in the classroom. The results showed that a hybrid format may be a good compromise alternative between the traditional face-to-face format and the online format. In some situations, the hybrid format may be the best alternative. Students performed better (earned better grades) in the hybrid classes. Student ratings of satisfaction depended on the course subject. The author discusses some lessons learned, including benefits and drawbacks of the hybrid format for the instructor and students.

Introduction

Proponents of online courses have presented the format as the answer to the problems of time and distance: each student can learn the material when and where he or she chooses. Instructors have long valued traditional courses for rich communication, where an instructor and students can communicate through lecture, spontaneous discussion, interactive activities, and body language.

Hybrid courses are a mixture of the online and face-to-face formats. Students can complete some (but not all) of the course activities online. The instructor and students meet together, face-to-face, sometimes (but not as often in a traditional course). Is the hybrid format the best of both worlds, or does it dilute the key advantages of the separate formats?

This research compares the face-to-face version with a hybrid version of two courses: Principles of Marketing and International Marketing. The paper describes the design of a hybrid course, in which the instructor was available only by email for half of the course and available in the live classroom for half of the course. The findings included a comparison of student performance and student course evaluations for the two formats.

Literature Review

What is a hybrid course? The University of Wisconsin-Milwaukee defines a hybrid (or blended) course as one in which “a significant amount of the course learning activity has been moved online, making it possible to reduce the amount of time spent in the classroom. Traditional face-to-face instruction is reduced but not eliminated” (LTC, 2007a). The factors that define a hybrid course include: (1) the introduction of Internet-based learning activities; (2) a reduction of classroom “seat time;” and

(3) an integration of the Internet-based and face-to-face components of the course to complement each other and to take advantage of the best learning features of each (LTC, 2007b).

What attracts teaching institutions to the hybrid course format? Appalachian State introduced hybrid courses to accommodate more theater courses in scarce classrooms (Hensley, 2005). The University of Central Florida offers about 100 hybrid courses that meet half the time in classrooms and half online, which has reduced the university’s need to rent extra classroom space (Young, 2002). Universities can double their classroom capacity by scheduling one hybrid class to meet on Tuesday and online, and a second class on Thursday and online, rather than reserving a room for one traditional class for Tuesday and Thursday.

Proponents of the hybrid format believe that students learn better in a hybrid course than in a face-to-face or an online course. Faculty members “believe their students learned more in the hybrid format than they did in the traditional class sections.” Students “wrote better papers, performed better on exams, produced higher quality projects, and were capable of more meaningful discussions on course material” (Garnham & Kaleta, 2002).

Web-enhanced (hybrid) courses have higher success rates (percentage of students obtaining an A, B, or C) and lower withdrawal rates than both comparable face-to-face courses and fully online courses. Faculty members are sometimes concerned that the reduced personal interaction will isolate them from students. Instructors reported that “more interaction occurs in their Web and Web-enhanced courses than in their comparable face-to-face sections (and) that this interaction is of higher

quality than what they typically see in face-to-face (courses)” (RITE, 2005).

Design & Implementation of Courses

Can one be in two places at one time? I considered this age-old question when I had the opportunity to travel to China for two weeks during the time that I was to teach two summer courses. I wanted to travel and teach. The solution was to teach the first half of the courses from China, and teach the second half of the courses on site when I returned.

I had taught both of these courses in a completely online format, so I had lecture notes or PowerPoint slides, assignments, and quizzes already installed in the BlackBoard course management system. I had also taught both of these courses in a web-enhanced face-to-face format. The challenge was to combine the two formats into a hybrid presentation, and to introduce to and manage this unfamiliar format with students.

The first challenge was to plan the activities of the five-week summer hybrid course. I chose due dates and times for online activities, and days and times for face-to-face activities. This is typical of the preparation for an online class, where the instructor may plan all activities, assessments, and grade book items for the entire course.

I had used BlackBoard to host some assignments and quizzes for the face-to-face courses as well. The term hybrid or blended has also been used for web-enhanced face-to-face courses that also use online technology as a supplement to live teaching. The key difference between the face-to-face and hybrid courses was not the use of technology; it was the reliance on technology to replace the physical presence of the instructor for a significant block of time in the hybrid courses. The “meeting” format was also different in the hybrid course in that all discussions and lectures were completely online for half of the course.

The students were not aware that I would deliver the course in a hybrid format until the first class meeting. A colleague graciously agreed to meet with the students on the first class session to distribute the syllabus. The syllabus instructed the students to log onto the BlackBoard area for the course and follow the instructions therein. A schedule gave the deadlines for reading assignments, writing assignments, quizzes, and discussion board assignments for each day.

The grading criteria were very similar for the face-to-face and hybrid versions of the courses. The courses had

nearly identical quizzes, exams, and assignments, such that approximately 80% of the grading criteria were common between formats. One exception was that students in the hybrid courses contributed to online discussions, for a grade, while students in the face-to-face courses participated in live, un-graded discussions. Another exception was that students in the face-to-face courses presented a public speaking assignment, while students in the hybrid courses had no speaking assignment.

Instructor-Generated Propositions

The college teaching evaluation instrument had 35 questions that reflected the quality of teaching. On which questions would the hybrid class score higher than the face-to-face class? On which questions would the face-to-face class score higher than the hybrid class?

I surveyed six colleagues to identify the interesting questions on the college teaching evaluation instrument. The survey asked the instructors to think about a summer term Marketing Principles course, and to respond to the question: “How would the student evaluations for the hybrid class be different from the evaluations for the face-to-face class?” The task was to predict if the hybrid class score would be higher, if the face-to-face class score would be higher, or if there would be no difference between the scores for each item.

The face-to-face course met in the classroom for 20 two-hour sessions over 5 weeks, Monday through Friday. The hybrid course met online on BlackBoard for 9 sessions over 5 weeks (after an initial meeting), then was scheduled to meet in the classroom for 10 two-hour sessions, Monday through Friday (about half the class time online and half in the classroom).

Most of the quizzes, exams, and assignments were similar and students completed them online on BlackBoard for both courses. One difference is that students were required to participate in online discussion boards in the hybrid class, during the times when the class met online only. Students in the face-to-face class participated in discussions in the classroom, and no discussions online.

Another difference is that students in the face-to-face class were exposed to live teaching in the classroom for the full 5 weeks (live lecture, live discussion, videos, live group exercises, live student presentations, etc.) while students in the hybrid class were exposed to online materials for about 2.5 weeks and to live classroom activities for 2.5 weeks.

My colleagues predicted that the hybrid course would earn higher scores on three items, and that the face-to-face course would earn higher scores on eight items. In addition, five of six faculty members identified more questions for which the face-to-face format would outscore the hybrid than vice versa (one respondent identified an equal number for both formats).

Table 1 lists the faculty members' predictions of which teaching evaluation questions would favor the hybrid or the face-to-face format. Three or more faculty members agreed on the predictions for these items.

TABLE 1: TEACHING EVALUATION QUESTIONS PREDICTED TO FAVOR FACE-TO-FACE OR HYBRID FORMATS.	
Questions predicted to favor the hybrid format:	
10.	Requires written work on assignments or exams.
13.	Does require work in course preparation outside of class.
18.	Makes students feel free to ask questions or ask for help.
Questions predicted to favor the face-to-face format:	
1.	Is accessible for consultation outside of class.
2.	Relates to students as individuals.
4.	Is available as a mentor or informal advisor.
21.	Lectures at students' level of comprehension.
27.	Overall, this is a valuable course.
34.	Focusing now on the course content, this course is worthwhile in comparison with others I have taken in the College of Business.
35.	Focusing now on the course content, this course is worthwhile in comparison with others I have taken in this department.

These results are from a small convenience sample of instructors, yet they suggest some interesting propositions to examine with the student data. Two questions reflect written work and homework, and instructors predicted them to favor the hybrid format. This may reflect the nature of online teaching in which the main student interface is the keyboard, and by definition, the student completes work outside of class. This observation suggests:

Proposition 1: Students will rate the hybrid format higher than the face-to-face format in regards to written work and homework.

Instructors predicted that students would feel free to ask questions in a hybrid course, during the online portion. This observation suggests:

Proposition 2: Students will rate the hybrid format higher than the face-to-face format in regards to their feelings of freedom to ask questions.

Many factors could suggest why a face-to-face format fosters better interpersonal relationships between students and faculty: conversation within or outside of class; eye contact; physical availability to meet; etc. Instructors predicted that questions about student access to instructors for consultation and mentoring, the instructor's ability to relate to students, and instructor respect of questions would favor the face-to-face course. This observation suggests:

Proposition 3: Students will rate the face-to-face format higher than the hybrid format in regards to items that reflect interpersonal relationships with the instructor.

Instructors predicted that an item that related to lecturing would favor the face-to-face format. This may reflect the nature of live teaching in which the main form of delivery may be lecture by the instructor. By definition, the lecture item would favor the face-to-face format (unless students prefer no lecture to the instructor's lecture). This observation suggests:

Proposition 4: Students rate the face-to-face format higher than the hybrid format in regards to items that reflect instructor lecturing.

Instructors predicted that students would prefer the face-to-face format on three summary measures of teaching effectiveness, including that the course was valuable overall, and that the course was worthwhile when compared to others taken. This prediction may reflect the sum of the instructors' predictions that more of the evaluation items would favor the face-to-face format. Alternatively, it may reveal instructor bias toward the face-to-face format. In either case, the instructors predicted that the face-to-face courses would fare better than the hybrid courses in regards to summary student evaluations of teaching. I also computed an overall rating, which was the mean of responses (scaled so that higher is better) to all 35 items in the teaching evaluation instrument. These predictions suggest:

Proposition 5: Students rate the face-to-

face format higher than the hybrid format in regards to items that reflect summary evaluation.

Results

Students submitted the data on the hybrid and face-to-face courses as part of the normal teaching evaluation process. I taught both the hybrid and face-to-face courses in summer terms, but with two years between the summers.

Table 2 shows the mean of student responses to the teaching evaluation items from the hybrid version of Principles of Marketing, and compares them to the mean responses by students on their evaluation of the face-to-face version of the course. The first column lists the questions chosen by the predictions of the faculty members. The second and third columns list the raw means for the items from the student evaluations of teaching.

The fourth and fifth columns list a normalized version of the data. I normalized the data because the item ratings of the face-to-face version of the Principles of Marketing course dominated the ratings of the hybrid course. The higher overall level of ratings in the face-to-face course masked the relative contribution of the individual items to the overall rating. Therefore, I divided each item rating by the overall rating for the class (the mean of responses to 35 questions) to get a normalized rating. The normalized rating shows an amount each item was below or above the overall mean rating for the course. This allowed me to compare the item ratings between courses in terms of how each deviated from the overall course ratings.

I did not perform tests to determine the statistical significance of the differences between the mean ratings. First, I did not use a random model to choose the data. I did not use a sampling process to gather the teaching evaluation data. The hybrid courses (and their students) were the only courses available and hence a convenience sample of courses. Within the courses, the teaching evaluation process was an attempt at a census of all stu-

Question	Hybrid rating (raw; n=13)	Face-to-face rating (raw; n=16)	Hybrid rating (normalized)	Face-to-face rating (normalized)	Results favor (as predicted?)
10. Requires written work on assignments or exams.	3.39	3.94	0.81	0.89	F2F (no)
13. Does require work in course preparation outside of class.	4.46	4.50	1.07	1.02	Hybrid (yes)
18. Makes students feel free to ask questions or ask for help.	4.54	4.56	1.08	1.04	Hybrid (yes)
1. Is accessible for consultation outside of class.	4.15	4.44	0.99	1.01	F2F (yes)
2. Relates to students as individuals.	4.23	4.63	1.01	1.05	F2F (yes)
4. Is available as a mentor or informal advisor.	3.77	4.06	0.90	0.92	F2F (yes)
21. Lectures at students' level of comprehension.	4.62	4.75	1.10	1.08	Hybrid (no)
27. Overall, this is a valuable course.	4.08	4.38	0.97	0.99	F2F (yes)
34. This course is worthwhile in comparison with others I have taken in the College of Business.	3.85	4.38	0.92	0.99	F2F (yes)
35. This course is worthwhile in comparison with others I have taken in this department.	3.92	4.00	0.94	0.91	Hybrid (no)
Overall rating (35 questions)	4.19	4.40			F2F (yes)

dents enrolled in the course, not a sample. Second, the data are from a small number of respondents. The reader should consider that these are exploratory results and not infer that the findings generalize to a larger population of students or courses.

The reader should also note that the importance of the differences between the raw means is small in many cases. An individual rating of 5.0 on an item reflects a student response of “I strongly agree” and a rating of 4.0 represents “I agree.” Therefore, a mean group rating of 4.56 is greater than a mean rating of 4.54, and represents a real difference between the means of the groups as measured, but the practical meaning of the difference is somewhat subtle.

The last column shows which of the hybrid or the face-to-face versions rated higher on each of the selected items. It also shows whether the results agreed with the instructor’s predictions. Table 3 compares the student evaluation data from the hybrid and face-to-face ver-

sions of International Marketing. I will discuss results from both tables as I discuss each proposition.

Discussion

Proposition 1: Students will rate the hybrid format higher than the face-to-face format in regards to written work and homework.

The instructors predicted that ratings for the item “Requires written work on assignments or exams” would favor the hybrid format. Data from both the Principles of Marketing and International Marketing courses favored the face-to-face format, instead. The instructors predicted that ratings for the item “Does require work in course preparation outside of class” would favor the hybrid format. Data from the Principles of Marketing course agreed, but data from the International Marketing course favored the face-to-face format.

TABLE 3
STUDENT EVALUATIONS OF TEACHING, INTERNATIONAL MARKETING

Question	Hybrid rating (raw; n=11)	Face-to-face rating (raw; n=13)	Hybrid rating (normalized)	Face-to-face rating (normalized)	Results favor (as predicted?)
10. Requires written work on assignments or exams.	3.82	3.77	0.85	0.86	F2F (no)
13. Does require work in course preparation outside of class.	4.09	4.62	0.91	1.06	F2F (no)
18. Makes students feel free to ask questions or ask for help.	4.73	4.15	1.05	0.95	Hybrid (yes)
1. Is accessible for consultation outside of class.	4.50	4.23	1.00	0.97	Hybrid (no)
2. Relates to students as individuals.	4.36	4.31	0.97	0.99	F2F (yes)
4. Is available as a mentor or informal advisor.	4.46	4.00	0.99	0.92	Hybrid (no)
21. Lectures at students’ level of comprehension.	4.64	4.54	1.03	1.04	F2F (yes)
27. Overall, this is a valuable course.	4.82	4.54	1.08	1.04	Hybrid (no)
34. This course is worthwhile in comparison with others I have taken in the College of Business.	4.70	4.39	1.05	1.00	Hybrid (no)
35. This course is worthwhile in comparison with others I have taken in this department.	4.70	4.39	1.05	1.00	Hybrid (no)
Overall rating (35 questions)	4.48	4.37			Hybrid (no)

The data generally fail to support the prediction that students would rate the hybrid format higher regarding written work than would students in the face-to-face format. This may reflect the possibility that instructors were considering a hybrid course design quite different from a face-to-face course, with considerably more written work. In fact, the number and type of written assignments was very similar in the hybrid and face-to-face formats, for both the Principles of Marketing and International Marketing courses, with the face-to-face format having a lower proportion of written assignments due to its additional in-class assignments. A hybrid course may not necessarily contain more written assignments, by virtue of the technology

Proposition 2: Students will rate the hybrid format higher than the face-to-face format in regards to their feelings of freedom to ask questions.

The instructors predicted that ratings for the item “Makes students feel free to ask questions or ask for help” would favor the hybrid format. Data from both the Principles of Marketing and International Marketing courses supported this proposition.

It may seem ironic that students would feel freer to ask question in an online setting than in a face-to-face setting. For one, students are comfortable asking questions in the privacy of an email message. In addition, students may feel free ask a question after they take time to think about it and write it, and then post it in the relative anonymity of an online discussion board. Students could post questions for the instructor in a special discussion forum in each of the hybrid courses in this study. Research has shown that students are more likely to post a written comment to a discussion board than to speak in a live discussion (RITE, 2005).

Proposition 3: Students will rate the face-to-face format higher than the hybrid format in regards to items that reflect interpersonal relationships with the instructor.

The instructors predicted that ratings for three items related to interpersonal relationships would favor the face-to-face format: (1) Is accessible for consultation outside of class; (2) Relates to students as individuals; and (3) Is available as a mentor or informal advisor. Data from the Principles of Marketing course consistently supports this proposition. The International Marketing course data gives mixed results: data from two of the three items shows that students rated the hybrid course higher on interpersonal items.

Why would the hybrid International Marketing course rate higher on interpersonal factors than a face-to-face version of the course, and not so for the Principles of Marketing course? I taught the first half of both courses while on a trip to China. I shared my personal experiences in China in frequent discussion topics and photos that I posted to the online discussion boards. These topics were more relevant to the International Marketing course than to the Principles of Marketing course. In addition, I taught the second half of both courses in a face-to-face format, which may have been sufficient time to give personal attention to students. In any case, the face-to-face format did not have the advantage over the hybrid version on interpersonal factors that the instructors unanimously predicted.

Proposition 4: Students will rate the face-to-face format higher than the hybrid format in regards to items that reflect instructor lecturing.

The instructors predicted that ratings for the item “Lectures at students’ level of comprehension” would favor the face-to-face format. Data from the International Marketing courses supported this proposition; data from the Principles of Marketing courses did not. The differences between the means of the responses to this item were very small for both courses. Both the hybrid and face-to-face formats included lecture in the in-class portions. The results for the Principles of Marketing class suggest that more lecture, such as in the face-to-face format as compared to the hybrid format, is not always better.

Proposition 5: Students will rate the face-to-face format higher than the hybrid format in regards to items that reflect summary evaluation.

Instructors predicted that students would prefer the face-to-face format on three summary measures of teaching effectiveness: (1) Overall, this is a valuable course; (2) Focusing now on the course content, this course is worthwhile in comparison with others I have taken in the College of Business; and (3) Focusing now on the course content, this course is worthwhile in comparison with others I have taken in this department. I also computed a summary evaluation measure as the mean of all responses to the evaluation.

Data from the Principles of Marketing course supports this proposition in that students rated the face-to-face class higher on three of the four measures. The International Marketing course data gives unanimous support

for the opposite result: students rated the hybrid course higher on all four measures.

That the data give clear, but opposite, results on this proposition for the two courses is interesting. Here again, the fact that the hybrid course was taught from China could have boosted the ratings of the summary evaluations of the International Marketing course, but not the Principles of Marketing course. In other words, I added value to the International Marketing course (as compared to the face-to-face version) by teaching it in an International Marketing setting, but students did not realize such value in the Principles of Marketing class (over the face-to-face version). The overall rating of the hybrid International Marketing course was 4.48 versus 4.19 for the hybrid Principles of Marketing course, which underscores the fact that the International Marketing students were more satisfied with the hybrid arrangement.

Student comments

Over 80% of the students in the hybrid classes shared comments at the conclusion of the course, in response to the questions “What I learned” in the course and “What I wish I had known” before taking the course. The following paragraphs are excerpts from the student comments that pertain to the hybrid portion of the courses.

I feel I have learned a lot about China, since (the instructor) was there the first two weeks of the class. The class discussions on-line taught me history, money, government, and etc...on China. I loved (International Marketing) because it is not just an ordinary class, (the instructor) makes it fun while learning...and a lot of its online, so being organized and on time is very important!

I wish I knew that the first two weeks were going to be online because that was a surprise to me. If I had known that the first two weeks were going to be online, I don't know if I would have taken the class because I like the classroom environment better than the Internet.

Information in the course that made an impression on me would have to be when (the instructor) came back from China and made the comparisons of our economy to the Chinese economy. I always knew that there was a big difference between

the United States and China but it really makes much more sense when you hear it from someone first hand.

The only thing I wish I had known about this course before I signed up for it is that it was going to be on line for the first 2 ½ weeks. That way I would not have been so stressed out about some schedule conflicts that I was going to have to deal with. So, (the instructor) going to China really helped me out!

One of the highlights of the course happened before the course even started when I was informed my teacher would be teaching from China. I thought that was something somewhat out of the ordinary.

I wish I would have known that this course would be primarily conducted online before I began the course because I would've been “more ready” to read the book as much as I had to. Still, I liked the ‘change of pace’ that this course offered. Sometimes it is good to have a course that is run a little differently than all the other ones that you take. It was a change for the better, and it helped me to do well in all three of the summer courses I took this summer session.

My main highlight of the course was the first two weeks of class. I enjoyed taking this class as an online course. I think that it works better that way.

What were the highlights of the course? Not having to go. I am taking 4 classes in a summer session and not having to go for those few weeks (the instructor) was in China helped me tremendously. It was a load off, at least for a little while. Learning about China was fun.

I wish I had known that the first half of the class was going to be online. While I most likely not have took the course if I had known this, because I have never took a online course and was a little hesitant of ever taking one, I am glad I did. I was happy enough with this course that I am going to take my first online class this fall after going to school over 3 years.

Lessons Learned

Students may prefer, as the faculty members predicted, the face-to-face format to the hybrid format. Perhaps this is true, except when the hybrid format adds value to the course (such as an International Marketing class taught partly from China). The hybrid format may gain an edge when compared with the face-to-face over a traditional 15-week term, when flexibility may be important to students, rather than over 5-week summer term.

Research shows that students prefer the hybrid format due to its flexibility and convenience, and increase in interaction, and rate the quality of their experience as high as or higher than their face-to-face courses. Course weaknesses often refer to problems with technology, including difficulty with course management systems (Waddoups & Howell, 2002). Students value the intuitive structure (clearly defined objectives, assignments, deadlines, and encouraging dialogue and interaction) of a course (Stein, 2004).

It appears that the face-to-face format may not have an inherent advantage over the hybrid format, in terms of student's ratings of lecture and of relationships with the instructor. While the hybrid version does not have as much contact between students and instructor as the face-to-face version, it may have enough. This suggests a hybrid version as an alternative to the purely online format.

Students are more comfortable asking questions online than in a face-to-face setting. This suggests that an instructor could engage students more effectively by introducing online discussions in a hybrid format (with online class time as a substitute for in-class time), or at least with a technology-enhanced face-to-face format (as a supplement to in-class time).

As a practical matter, how does one position a hybrid course in the mind of students? Most students know what to expect from a face-to-face course, and can imagine what an online course would be like: these formats come with a set of unwritten rules and expectations. One student who signs up for a face-to-face course and finds a hybrid may be very dissatisfied with the reduced face-to-face contact. Another might conclude that the class is online and not attend class. I took a chance by announcing the non-standard hybrid format on the first day of class, and luckily, no students failed and only one withdrew. How does one define a hybrid course in the course schedule or course catalog?

Student performance, in terms of grades, was better in the hybrid versions. Students in the hybrid Principles of Marketing class earned a class grade point average (GPA) of 3.64 (out of 4.0), whereas students in the face-to-face Principles of Marketing class earned a 3.50. The hybrid International Marketing class GPA was 3.42 and the face-to-face International Marketing class GPA was 3.38. Other research has found that students in hybrid classes perform as good as or better than students in face-to-face classes (RITE, 2005).

What about the instructor experience? I was able to teach the online portion of the course from China with a minimum of difficulty. I stayed in hotels that had Internet access, albeit sometimes painfully slow and expensive. I was distressed for several days when Google and the Peoples Republic of China had a public quarrel, and the Chinese government cut off access to gmail and other Google products for two weeks (Milchman, 2006). I had posted discussion comments and photos (obtained from the Internet) to the online class discussion boards before I left the United States, just in case.

I would teach a hybrid class again. The hybrid format involves more work than the face-to-face format, mainly due to the high degree of advance preparation that is required, the increased interaction with students on discussion boards and by email, and by the need to design learning activities for the online environment. My experience was consistent with research on faculty satisfaction with the hybrid format.

One study of faculty members found that 88% (n=43) were satisfied with blended (hybrid) courses. The faculty members were pleased with the convenience, increased instructional quality, increased interaction with students, and their increased technology competency from using the hybrid format (Dziuban, Hartman, & Moskal, 2004). An instructor may benefit from incorporating some elements of technology into a web-enhanced face-to-face course, without moving directly to a half-online and half-live course (Johnston, 2004).

Conclusion

This research compared the outcomes of teaching with a hybrid format to a face-to-face format, for two Business Administration (marketing) courses. The instructor taught the first half of the hybrid course from China, via the Internet, and the second half in the classroom. The results showed that a hybrid format may be a good compromise alternative between the traditional face-to-face format and the online format. In some situations, the hybrid format may be the best alternative. Students

performed better (earned better grades) in the hybrid classes. Student ratings of satisfaction depended on the course subject. The author discusses some lessons learned, including benefits and drawbacks of the hybrid format for the instructor and students.

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FOSTERING INSTITUTIONAL INNOVATION AND TEACHING FOR GLOBAL CITIZENSHIP THROUGH INTERDISCIPLINARY FACULTY SEMINARS

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ABSTRACT

This article considers the potential of annual cross-disciplinary faculty seminars for promoting innovative undergraduate teaching. The seminars form part of a global citizen program which is an integral element of a university change initiative to broaden undergraduate appreciation of international and global issues. Survey data from three cohorts of faculty participants in the seminars are analyzed for evidence of the contributions made by seminars to increased interdisciplinary cooperation, collegiality, and sharing of innovative approaches to selecting course content and methodology. The findings suggest that the faculty seminars not only contribute to specific course development, but offer a highly valued opportunity for faculty to interact through the medium of focused discussion, to meet peers from other disciplines, and to share new approaches to teaching. These findings support current organizational theories of creating and sustaining a culture of change and innovation by developing shared vision, building relationships and sharing knowledge.

Introduction

Institutionalizing innovation and creating change in educational organizations are notoriously difficult processes to initiate, particularly in universities. Faculty identify strongly with academic disciplines. University certification procedures and requirements reinforce this segregation of activities by subject area. This segregation mediates against the introduction of interdisciplinary initiatives designed to reflect the changing nature of knowledge creation, sharing, and use. When interdisciplinary initiatives are attempted, they warrant careful study for the insights they can offer to best practice.

This article describes the introduction and development of an interdisciplinary undergraduate Global Citizen Program (GCP). The study focuses on the use of annual faculty seminars to promote innovations in course content and delivery that facilitate student learning. The seminars are also designed to sustain campus-wide interest amongst the faculty in the ongoing development of

the program. Faculty perceptions of the seminars drawn from three years of survey data are analyzed to identify key themes, using theories of organizational change as a framework. The results of the qualitative analysis give insights into the processes at work in the seminars. They inform a discussion of the likelihood that the seminars will achieve their intended outcomes, and inform a discussion of the potential use of this pedagogical practice in other contexts where sustaining innovation is the goal.

The Program Design

The Global Citizen Program (GCP) was launched at the start of the 2004 academic year. The program was a response on the part of a private university in the eastern U.S. to concerns raised in 1998 and 2000 by the American Council on Education (ACE). These concerns related to the lack of understanding of global issues demonstrated by U.S. undergraduates. The program was one of

a number of university initiatives around the country to change student and faculty attitudes on campus towards international and global involvement.

Approaches to program development differed from institution to institution. In the university where this study is situated university leadership initiated the project but opted to leave program design to a cross-disciplinary faculty group. Group discussions began by focusing on the definition of global citizenship and the development of specific courses to accommodate the students in the program. However, as discussions continued, the focus shifted to a consideration of ways to enable students to obtain the perspective necessary to develop their own unique stance and personal definition of what it means to be a global citizen. A consensus was reached that, to do this, students did not need a new program of prescribed classes, but they did need the flexibility to tailor their educational experience around their own unique concept of a global citizen. Faculty chose to have students select a set of courses and experiences, to “fill a backpack” (Stewart-Gambino & Grudzinski-Hall, 2004) with courses they considered they needed to reach their goal, regardless of their disciplinary home. Translating this to the practicalities of course selection, a business or engineering student might need select classes and experiences in language or culture, while a liberal arts student might need to find opportunities within university course offerings to obtain a greater awareness of the technical or business ramifications of globalization.

Given this consensus that students enrolled in the program would develop their own personal stance as a global citizen, or their own interpretation of global citizenship through exploring themes across disciplines and would select courses from a number of disciplines, the next question to be addressed was that of how to ensure there were relevant courses that would facilitate student exploration of global citizenship in every discipline. Providing this flexibility would involve faculty commitment to modification and development of existing courses, not traditionally features of academic life or institutions of higher learning. To ensure faculty involvement in this process, the university committed to providing faculty seminars focused on program development.

The Faculty Seminars

The seminars were designed to bring faculty together from across disciplines to discuss and share potential course ideas and modifications. Mellon Foundation funding was sought to support this plan and to provide a stipend for those faculty members choosing to become

involved. Since gaining approval for this plan in 2004, approximately 16 university faculty have been invited every spring semester to participate in these interdisciplinary Global Citizen Faculty Seminars (GCFS). Participants are encouraged to think, speculate, and debate about global citizenship and its implications during the eight-weeks of the seminar. This process leads to the participants either modifying an existing course or developing a new course focused on some significant issue or problem of global citizenship. These courses become the core courses for the GCP as well as regular offerings within the overall university curriculum. Since 2004, 45 faculty members from all four of the university colleges have participated, and over 50 new or modified courses have been added to those open to students registered in the GCP.

Context, Method, and Findings

Context

The goals of the program and the process by which it evolved and developed clearly marked it as a change initiative, and one which had the potential to affect course development across the university through the creation of a climate of innovation. The choice made by the university to both develop the program design through faculty discussion, and to use the ongoing faculty seminars to drive new course creation or modification of existing courses, reflect what theorists of managing successful organizational change have identified as best practice for sustaining organizational innovation. Three themes—shared vision, building relationship and knowledge building and sharing—emerge from the literature as key components in successful change models and guided our framing of this study. A summary of these themes is given below.

Shared vision. Vaill (1982) defined a shared vision as ‘purposing,’ an activity “that fosters clarity, consensus and commitment regarding the organization’s basic purpose” (p. 29). Evans (1996) described a shared vision as “crucial to innovation, because it helps make organizational membership and work itself meaningful” (p. 16). Noting the difficulties of defining vision, Evans suggested that leaders invigorate performance and inspire commitment to change by “engaging their people in the pursuit of shared goals, placing the emphasis on flexible, developmental planning and the building of shared meaning, and aiming to build innovation that is truly collaborative wherever possible” (p.18). Kotter (1996), discussing sustaining innovation, theorized that:

Change sticks when it becomes 'the way we do things around here' when it seeps into the bloodstream of the corporate body. Until new behaviors are rooted in social norms and shared values, they are subject to degradation as soon as the pressure for change is removed (p.18).

Evens (1996) echoed this theme, stating, "when it comes to innovation, participation is a primary path to commitment: people are much more likely to invest themselves in something they help shape" (p.231).

Duck (1993) suggested that most change efforts are fundamentally about moving information across old and obsolete boundaries and noted that "organizing early conversations between different parts of the company and making those conversations an important sanctioned part of the change process is a critical task" (p.78). In the case of the GCP, the initial vision of the program was promoted by the university, which then encouraged a faculty planning committee to define the program in terms of student outcomes. The seminars that followed allowed a growing number of faculty the opportunity to clarify their own understanding of the model developed, and to shape it through courses modified or offered, in tune with these understandings generated by conversations with their colleagues.

Relationships. The importance of building relationships among all the participants in a change initiative was stressed by Fullan (2001) as a key theme in his studies of corporate and educational reform efforts. Kanter's (1983) studies of corporate innovation suggested that 'socializing' in innovative organizations, "served an important task-related purpose: building a foundation of cross-cutting relationships to make integrative team formation that much easier" (p. 32). Kanter noted that innovative organizations continually create teams "that represent new and different configurations, offering the potential for many more people, in theory, to find a connection with nearly everyone else [and] pull people together across specialties and with several dimensions of organizational experience to solve problems" (p.32). Relationships between participants can also change as a result of working to innovate. Fullan (2001) noted, "We have found that the single factor common to every successful change initiative is that relationships improve" (p.6). Given a university structure that provides limited opportunities for faculty to discuss anything other than university business in formal committees, or the initiatives of individual colleges by their faculty, cross disciplinary discussions such as those provided by the GCFS appear to have the potential for developing strong rela-

tionships amongst faculty across the university, to the benefit of the whole institution.

Knowledge building and sharing. One goal of the faculty seminars is to give participants an opportunity to clarify their own understandings of global citizenship and how it relates to their own scholarship and responsibilities to their students. A second goal is that faculty will share their experiences of course building, development, and innovative teaching methodologies. The university believes that the sharing between faculty in the seminars will create a climate in which new perspectives can be appreciated, and new ideas and practices explored. Evans (1996) discussing innovation in school settings, stated, "Opportunities to collaborate and to build knowledge can enhance job satisfaction and performance. Collegiality denotes a collaborative work culture in which teachers talk regularly and seriously about their work, and teach one another what they know about their craft" (p.231). Kanter (1983) saw participation in team projects above and beyond the role requirements of the job as device for tapping unexpected individual contributions. Such participation "helps ready people for change by giving them a broader outlook and more skills. And it ensures that people have information beyond their limited purview" (Kanter, p.34).

Several theorists stress the need for the organization to create a situation in which sharing can take place. Fullan (2001) remarked that:

People will not voluntarily share knowledge unless they feel some moral commitment to do so...people will not share unless the dynamics of change favor exchange... and data without relationships merely cause more information glut. Put another way, turning information into knowledge is a *social* process (p.6).

He stated that the organization's intent of stimulating innovation must take responsibility for framing the giving and receiving of knowledge and must reinforce such sharing through incentives and opportunities to engage in it. Kanter (1983) suggested that encouraging people to come together in a team activity benefits everyone as "individuals are more empowered by the access to the additional power tools that the team offers than they would be even if exercising their clear and unquestioned authority with one segment" (p.35). In the field of higher education, Cummings and Straw (1996) examined curriculum reform at North Dakota State University, a study that indicated that the involvement of academic departments and the dissemination across the university

of information about the process was vital to achieving the intended outcomes.

Method

We chose to analyze the data available for evidence that supported or challenged the models of successful institutional innovation and change. The data consisted of surveys completed by the faculty seminar participants designed by the program director to solicit feedback on the seminar. The survey consisted of six open ended questions and was completed electronically. The program coordinator followed up requests for the completed questionnaire with each participant to ensure as complete a return as possible. Responses were collated by the program coordinator and all means of identifying the participants was removed before the data reached us.

We chose to analyze the responses to four questions that we believed would offer insights into the processes at work during the faculty seminars. The questions selected were (1) What were your expectations about the Global Citizenship Faculty Seminar? (2) What did you like most about the seminar? (3) How did your ideas change about your courses as a result of the seminar? and (4) How will you involve the issues and themes relevant to Global Citizenship in your current/new courses? For the purposes of this study, the responses to the latter two questions were grouped together, given that they both related to anticipated faculty changes to either content or teaching methods in existing courses or in new courses to be developed for the GCP.

We analyzed responses using qualitative document analysis methods (Patton, 2002; Maxwell, 2005) for evidence that processes leading to the development of the three components of models of successful change—shared vision, relationship-building, and knowledge building and sharing—were present in the faculty seminars. Each set of responses was read and re-read, emergent themes noted, and a tally of responses for each theme was made for the three questions for each year, allowing for a comparison between the three faculty cohorts in the study. The total number of responses for each theme for the three years of the study was then tabulated, indicating the relative importance of each component in the perceptions of the faculty. These results were then analyzed in the context of the three components of the change models discussed previously.

We were mindful of researcher bias in this process. We had all participated in a semester of faculty seminars, one of us in the capacity of a faculty member and the others as program administrators. While our participation in

the seminars had taken place well before this study had been conceived, we appreciated that our overall experiences of the seminar might color our interpretations of the comments about it as offered on the surveys. To offset this effect, we asked an independent observer to analyze seven of the 36 surveys to ensure reliability in the interpretation of the data.

Results

Table 1 indicates the themes that emerged from the responses for questions 1, 2, and the combined responses to 3 and 4, and the numbers of faculty participants from each cohort whose responses supported each theme, together with the total number of supporting responses for the three years of the study.

Responses to the Question 1: What were your expectations about the seminar? revealed that nearly a third of faculty participants admitted to not being clear about the aims and objectives of the seminar at its start, with responses including the following: “I had almost no expectations going into the seminar. I felt that the only deliverable would be to push me towards revising my syllabus,” and “I had little idea what to expect.” The second and third cohorts differed from the first in having the opportunity to discuss the seminar with colleagues from the first cohort, and to hear the experiences of students in the GCP at a presentation made at the start of the second and third years of the program. However, this does not seem to have made a significant difference to the responses for the second and third cohort’s understanding of the aims of the seminar, perhaps indicating a lack of communication between faculty about the nature of the seminar.

The strongest expectation was for an opportunity for cross disciplinary discussions and building relationships with other faculty (50%). A typical comment was “I basically hoped to have engaging conversations across disciplinary boundaries.” Two other expectations emerged from the responses. One concerned having the opportunity to compare understandings about the meaning of ‘global citizenship.’ The second, was how to incorporate methods and materials into courses that would help students develop their own understanding. Typical responses supporting these themes included, “building community: learning about other disciplines; reconceptualizing global issues; reconceptualizing ‘liberal learning’ in a global framework” and “to learn how other faculty members view the idea of global citizenship and how they plan to incorporate it in their courses, and also to figure out how to do so in my own course(s).” Others noted, “I was also looking forward to discussions

with colleagues in very diverse fields,” and “I had only vague expectations; however, these included stimulating discussions with colleagues and learning about how to ‘globalize’ courses.”

Those faculty members hoping to meet and interact through focused discussion with their colleagues in other disciplines and learn about what was going on in other areas of the university were not disappointed, according to the responses to question 2: What did you like most about the seminar? The opportunity to meet other faculty and the opportunity to engage in academic discussion were mentioned by approximately half of the participants, (47% and 50% respectively). A further 38% citing the opportunity offered to find out what was going on in other disciplines as making the seminar attractive for them. However, opportunities offered by the seminar for obtaining ideas about course materials and approaches was rarely cited in this set of responses, despite being an important expectation for many of the participants as indicated by responses to question 1.

Typical responses to question 2 included, “The opportunity to meet and enjoy faculty from across the university and to gain insight into how the issues of this seminar are imagined and addressed with different disciplines” and “Interactions with faculty; expanding horizons, comparing perspectives.” However, a number of responses suggested the experience of faculty interaction was powerful compared with the opportunities for gaining direct help with course development. One participant enthused, “It [the seminar] gave a chance to discuss some timely and important topics with articulate faculty. Lots of fun!” Another participant echoed this sentiment, commenting “The chance to meet people from other departments and colleges that I had not gotten to know before. Good camaraderie,” and another, enthused about the enjoyment gained from the dynamics of the seminar, noted, “Working with people with a wide variety of different world views and experiences. The level of discussion and exchange was most exhilarating when it got going.”

If the opportunity to gain ideas for course design and content was overshadowed in faculty perceptions by the enjoyment of interdisciplinary faculty discussion, these two aspects of the seminar emerged more clearly in the responses to questions 4 and 5. These asked: How did your ideas change about your course(s) as a result of the seminar? and How will you involve the issues and themes relevant to Global Citizenship in your current/new course? Fifty-five percent of the participants claimed the seminar helped them with course design, teaching methods, or content, noting they had gained

useful cross disciplinary content to incorporate in their courses. Fifty-seven percent claimed to have acquired ideas for new approaches or methods for presenting content or promoting student discussion. Examples of responses that supported these themes include, “I will be able to write a more complex and nuanced course that will provide many more perspectives and prisms through which to view my subject;” “I feel more comfortable trying out arguments and challenges than I might have before [the seminar] less parochial and field-specific, in other words;” and “I think I have a better idea of how I might structure the course—topics and approaches.”

Even those faculty who began their responses to these questions by expressing doubts that the seminar had led to a reassessment of their course content and methodology often went on to offer evidence that it had. For example, one respondent noted, “I don’t think my ideas about how I wanted to modify my course actually changed—but I did get a lot of fresh ideas about how to do it, and different ways of approaching some of the topics.” Another commented, “My core ideas of how to approach global citizenship in my courses hasn’t changed, but I definitely feel like the exposure to other viewpoints in this seminar has given me a broader context in which to present course material.”

For some of the faculty participants, the seminars prompted a re-evaluation of content and course delivery. The enthusiasm engendered by the discussions prompted one faculty member to write, “I have more passion for including global citizen topics in my course and learned about new perspectives and resources that I might include.” Several others commented on the effect of being made to look at courses and methods of presentation through different lenses and thus see in themselves a tendency to present students with a limited viewpoint. One participant stated, “I would like to include a more diverse array of points of views and perspectives in my course, in order to avoid enclosing my students into my own ‘bubble,’” and another, “The emphasis on multiple interpretations seems key. I’ve been reminded that students should be asked to read poetry as well as the daily news headlines in every class.” Other faculty participants expressed an interest in using materials from other disciplines that they had been made aware of during the seminars, and in inviting faculty from other disciplines to engage the students in the course.

One overarching theme that emerged from the reading of all the responses in the survey was that of the sense of uniqueness of the experience projected by all the faculty involved in the seminars. Not only did they believe the experience to be unique, there was clearly a feeling

that opportunities to meet, mix, and debate with colleagues was beneficial not just on a personal level but for the whole university community in so far as it created a sense of community and shared experience. This was at odds with the more common academic activities of defending turf, disciplinary boundaries, and the isolation of faculty within them.

Typical comments supporting this theme included, "This is a forum that is exceedingly difficult to reproduce. It should happen more often;" "I would never have met some of the faculty let alone have discussions that were very interesting;" "It made me realize that as much as we want to think of ourselves as cosmopolitan and open minded, we all live in our own little (disciplinary, cultural, etc.) bubble;" and "I liked getting to know colleagues from different colleges and departments. The lively discussions that went on during seminars gave me a glimpse of the academic affairs of these colleagues which contrasted very much with my own experiences." This writer went on to say, "I think, for me it [the importance of the experience] was the opportunity to broaden my perspectives of the university academic community, thereby perhaps taking a small step towards global citizenship in our small community."

Discussion

Three themes emerge from the faculty seminar survey data. The first of these was the valuing of the opportunity to meet and share with faculty from many disciplines in focused discussion. The second theme that emerges was that of exposure to different viewpoints and perspectives. Thirdly, the acquisition of ideas about content and methodology that faculty could use to enrich classes was important. These themes, together with the motivation provided by the seminars to modify or develop courses and the monetary recognition for doing this, align well with the theoretical components of successful organizational change models—the development of a shared vision of what change and innovation would look like and its long and short term goals, the building of relationships between participants in the innovative process, and knowledge-building and sharing.

The faculty seminar contributed to building shared vision by providing participants with an opportunity to clarify the nature of the global citizen program. Survey comments indicate that the objectives of the program were not clearly understood by some participants. Nor was the need to orientate or modify existing courses to provide opportunities for students to explore ideas surrounding global identity and globalization, as well as to construct their understanding of citizenship. The

seminars allowed increasing numbers of faculty an opportunity to wrestle with a definition of the complex construct of global citizenship itself, not just those initially involved in program design. This clarification of the goals of the program and the constructs underlying it was facilitated by discussions that took place amongst academic peers in what was perceived as a friendly and relaxed atmosphere, during time for which the university offered monetary compensation.

Relationship-building was facilitated through the seminars which brought together faculty from different disciplines, and different areas (graduate, undergraduate, program directors). Even given the comparatively small size of the university, few such opportunities of this nature existed, in which participants met weekly for a semester and so gained an in-depth knowledge of each other impossible to achieve from one-off social meetings or official university events and business. Opportunities present themselves for collaboration between faculty from different disciplines focusing on course development, and the sharing of experiences and concerns contributed to the building of empathy and trust, an important feature of innovative organizational climate.

Knowledge building and sharing took place in the seminars as each faculty participant presented material they felt would be relevant to include in future course development. This content was discussed within the group, with a subject specialist extending the knowledge of all participants for the topic being presented. Conversations frequently moved on to effective methods of presentation, where all participants contributed their own experiences of teaching methodologies and student reactions to these.

Conclusion

The use of faculty seminars have developed and sustained an innovative program. They may well have indirectly contributed to improving existing courses for all students, not just those in the program, by initiating discussions focusing on effective methodology. Another indirect effect suggested by the comments of participants was the widening of global thinking in a predominantly parochial, locally oriented university, important given the university's efforts to improve diversity and develop a more global image and outlook. Some faculty noted that they entered the seminars expecting to be given something concrete, but ended up being provoked and challenged to expand their horizons and to search for ways to bring this challenge to their students in the courses they designed.

The seminars appear to have filled a need felt by many faculty to have a greater understanding of the work of different areas of the university in regard to approaches and methods of teaching—obtaining an overview of the organization in terms of effecting student outcomes. They also fulfilled a need for meaningful academic discussion with colleagues on a focused topic that allowed all participants to benefit from the multiple perspectives within the university. The friendly atmosphere of the seminars fostered a true learning community by making people genuinely interested in learning from one another in a low-risk situation.

The faculty seminars have intentionally or unintentionally modeled features of successful models of innovative and change. The development of university's GCP has created the potential for change and innovation that extends beyond the program into the wider university. Improved faculty communication and collegiality around issues of teaching and learning has laid the groundwork for improving student outcomes through more challenging content and methodology. Further research into student perceptions of GCP courses in relation to other course offering is needed to confirm whether faculty participants are translating their experiences in the seminars into changed practice and innovation across the university.

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RURAL ADULT LEARNING IN THE ABSENCE OF BROADBAND INTERNET

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ABSTRACT

The purpose of this study was to establish a deeper understanding of the educational needs of rural-based learners within the context of online learning opportunities. It was hoped to ascertain whether rural learner's needs differ in terms of learning choices from that of their urban counterparts. The basis for the urban examples is based totally upon available literature. This case study is particularly interested in identifying predictors for why rural learners choose to participate or decline to participate in online based adult and community education. Seven themes were identified during this study and are presented as a model for potential predictors of formal and informal online learning in rural communities.

Historical Perspective

Broadband Internet holds great potential for the expansion of successful adult literacy and learning programs for several key reasons. First, it can increase the effectiveness and efficiency of practitioners and improve learner's experience by minimizing isolation and supporting connections between dispersed and diverse groups. Secondly, and perhaps more importantly, those learners who would not otherwise take courses are afforded the opportunity to do so due to enhanced connectivity between adult education sites and potential participants (Learning with Technology, 1999). But is broadband Internet accessibility critical to the premise that technology holds such great promise for adult literacy and adult education in general? Certainly learner flexibility in terms of scheduling and convenience would support this argument. The alternative to rich, multimedia instructional videos delivered via the Internet requires participants to attend a learning center or produce media like DVD's for distribution. Neither alternative possesses the convenience factor for the learner or the learning facilitator. Younger adults are beginning to utilize iPods' and smart phones to listen to instructional material made available by high school teachers and college professors (Duke Center for Instructional Technology, 2006). There is also a smaller segment offering video over handheld devices which translates into even greater flexibility yet (Malan, 2006). Are *baby boomer*, working adults likely to use such technology? The answer is probably 'no', however as the population ages this likelihood increases as people's fear of technology diminishes. The most notable point is the trend toward applications of

technology that require high bandwidth for successful implementation.

Adult education professionals are beginning to leverage the Internet at a faster pace and research indicates an increased usage of the Internet specifically by adult literacy teachers (Rosen, 1996). Those citizens with low-income levels and in rural areas have less access to such services due to cost and availability issues and therefore are encountering an artificial barrier restricting their ability to succeed (Rosen, 1996; Fulton, 2001; Kruger, 2003). There is little doubt that lack of accessibility to the Internet for low-income learners seem to be a significant issue (Rosen, 1996). If low-income earners are indeed unable to afford high-speed Internet or even see its value for potential learning opportunities then there may be a direct correlation between the lack of access to technology and the perpetuation of illiteracy.

Cyril Houle establishes in his 6 Credos that adults are mature and understand what they need to learn and that the educator is accountable for assessing that need and to provide learning opportunities. He also states that educators should be willing to adapt their methods and andragogical approaches to match the requirements of learners and that adult education espouses as a core value the improvement of their generalized institutional processes (Houle, 1996). Implied in these basic principles is that adult educators must be open to new approaches that fit the need of the learners. This may require considerable and continuous training on the part of the adult educator especially in specific areas of technology.

Even at the turn of the 20th century, John Dewey's contended that all members of society needed a critical technological literacy to compete in changing environmental and social crises and challenges faced by government, industry, and the general public. The first thing to understand about technology is that people have a role, as citizens in a democracy, in deciding the ways in which technologies will be used in society (Dewey, 1915). Applying this principle to adult education today it could be surmised that all educators are responsible for effecting social change as it relates to both literacy in general and information literacy. From this perspective then, adults must be motivated to understand technology and how its use relates to their success or failure in a fast-paced society. Jane Addams, a social reformer and colleague of Dewey, challenged the techno-rational efficiency of industry's position and concluded that the educator must demonstrate to the average worker their place in a democracy, as members of society their responsibilities and how they can influence the industrial and social settings (Braundy, 2004). So even though she mildly disagreed with her colleague in the approach, she clearly understood the implications of individual responsibility to adapt to change and the educators duty to empower that change.

More recently, there is considerable research on the *digital divide* and how those specifically in rural areas can be afforded low cost, high speed Internet connectivity. A significant obstacle in rural America is convincing constituents that there is both a need for broadband and a cost feasible solution available. Local communities must ultimately determine their own motivations for such investments (Clement, Holbrook, & Staman, 1996), with assistance from governmental and private organizations, and educational institutions. Many perceive traditional libraries as one key to a comprehensive solution to the rural broadband issue but adult learners' needs must be considered before such assumptions can be asserted (Vavrek, 1995). After all the vast majority of libraries in rural areas are staffed with a single person, have a limited selection of books and even fewer professional journals and operate on a total budget of \$21,000 (Chute, 1994).

If lifelong learning is to be impacted by the introduction of broadband Internet, it must certainly be a conscientious effort by a collection of agencies, community groups and motivated individuals. The Faure Report contends that "every citizen should have the means of learning, training and cultivating one's self" and further to position themselves "differently relative to their education" (as cited in Candy, 2002, p.2). Certainly broadband Internet affords an opportunity for democratiza-

tion of information and may lend itself as an agent of adult literacy to larger segments of the population of as it is deployed. The concept of information literacy is also widely recognized as a second ominous issue even when and if broadband is generally available. According to the American Library Association's Presidential Commission on Information Literacy, a person is information literate when they are able to recognize when information is required and are capable of locating and analyzing that information (Candy, 2002).

Obstacles to Broadband

Competition

The issues surrounding implementing broadband Internet to rural America are more complex than one might imagine. Beyond the political wrangling for funding and "turf" control, there are other and perhaps more difficult issues lurking. Politicians are often concerned with only constituents in their district, or are under pressure from lobbyists who have only a particular company or industry's best interest at heart as opposed to the citizenry. Telephone, cable and other companies are too often embroiled in deregulation issues which boil down to control over certain geographic regions (Pressler, 2006). But national surveys performed by the NTIA do indicate that providers of DSL and cable are correct in their assertion that the interested consumer base is too small or disinterested to rationalize the expansion into rural areas (Grubestic, 2003).

Costs

People's ability to pay for broadband Internet access perhaps ranks as one of the chief barriers for achieving saturation of coverage in rural areas (Grubestic, 2003; ConnectKentucky, 2006). Minimum wage earners and those living on low, fixed incomes are naturally going to be most concerned with basic living necessities and expensive Internet access is not well received. Competition or the lack thereof has a dramatic impact on low income earners ability to afford high-speed access especially in rural America (Grubestic & Murray, 2004). This means that other solutions like affordable wireless access are going to be necessary as viable options. According to Jeannine Kenney, senior policy analyst for Consumers Union (Banos, 2006), "Fudging the facts won't provide high-speed Internet access to those who need it most. If the FCC is content to let cable and phone companies control the broadband market, then consumers need a third option; wireless broadband that is less expensive

and which doesn't depend on DSL or cable modems. It offers the best and perhaps now the only way to close the digital divide."

Culture

Perhaps some of the most difficult barriers to overcome are not technical in nature, but have more to do with human nature (Turner, Thomas and Reinsch, 2004). Perceptions by those in rural areas are often driven by traditions that are not entirely trusting of technological advances and fail to understand the potential of, in this instance, high-speed Internet (Obilade, 2001). People often see this advances as necessary for the improvement of public education but do not have any notion of the potential beyond K-12. Perhaps being perceived by their peers as a technical "geek" or as one who "thinks they are smarter than everyone else" is also an inhibitor (Ball, 2005). Convincing people of the value proposition is closely related to the cost of Internet access as evidenced by the ConnectKentucky (2005) Technology Assessment Study. According to this study on one Kentucky County, 12% of households reported that they do not own a computer, 38% indicated that they do not need the Internet and another 8% said that it is too expensive. Additionally, 34% of those polled indicated that broadband was either too expensive or unavailable to them. Even when people can afford broadband, this doesn't automatically mean that they will subscribe. Culture plays a significant role in such decision-making. For example, many senior citizens are intimidated by technology and often barely know how to send and receive email. As previously discussed those who struggle to read might avoid computer technology. There are numerous reasons that disabled Americans, certain religious-oriented, and even some minority groups might avoid active, persistent use of the Internet (Crabtree & Roberts, n.d).

Geography

Finally, considerable technological considerations become apparent when one examines the deployment of broadband capability. Mountainous terrain and dense foliage creates issues even with wireless proposals; and in wired solutions many miles of cable must be attached to utility poles or buried which is expensive. Often residents simply live too far from the necessary equipment for DSL service or the terrain isn't suitable for current wireless connectivity (Dern, 2005). Even satellite reception requires a clear view of particular regions of the sky which isn't always viable in mountainous or heavily forested regions.

State of Accessibility

Broadband availability in rural areas continues to be a major topic of concern among many people. Several grassroots organizations including the Wireless Communication Association International, and the Rural Broadband Coalition were created for the sole purpose of closing the digital divide for rural Americans. Most states and often small towns have found that they are on their own when comes to servicing their constituents. In many cases, current telecommunication providers have been contacted and deals established to provide service. In other cases, utility cooperatives, government owned cable or telephone companies, and private citizenry groups have succeeded in establishing high-speed options for consumers.

Information Literacy

Another issue that must be confronted is the concept of information literacy. Information literacy is the user's ability to comprehend the information once it is available (Fulton, 2001). Consider as an example an untrained individual being exposed to large volumes of information on how to build an engine. The mere fact that the information is available doesn't mean that someone can understand and utilize it even with proper context. This issue further complicates the implementation of broadband to all people. Once high-speed Internet is available to these underserved areas what guarantees are there that the utilization of the service will be effective? Distance education, telemedicine, electronic business, agricultural resources and interactive judicial services (E.g. Internet arraignment) only just a few of the opportunities to both the public and private sectors but awareness and training are key to the success of many of these initiatives. But what about the lifelong learner who is not interested in pursuing new skills for career related reasons. There are many people who learn simply to aid them in personal hobbies like quilting, or because they perceive that this desired knowledge will assist them at home. In rural life, skills not necessarily valued by others, become almost required to survive.

Methodology

A single rural, Kentucky community was examined using a case study approach which allowed for the use of both deductive and inductive reasoning (Tashakkori and Teddlie, 1998). The specific approach used is described as a parallel mixed method design where the quantitative data (surveys) and the qualitative data (in-

interviews) are collected simultaneously and then “analyzed in a complementary manner” (Tashakkori and Teddlie, 1998, p. 47).

The questionnaires did not ask for any names or other personal information that might be used to identify the subject. Basic demographic data was collected regarding general area of residence (zip code) gender, income range, an age range, the level of attained education, ethnicity and race. The McVay e-readiness survey (McVay, 2000) was customized slightly and used to address the participant’s readiness for online learning experiences. There are thirteen items on the instrument and participants record their responses on a 4 point Likert scale. This survey has been used in several studies (Smith, 2005; Smith, Murphy and Mahoney, 2003) and its reliability and validity is established by a study performed specifically on the instrument (Smith, Murphy and Mahoney, 2003). Written permission was obtained from the author to use the McVay e-readiness survey in this study.

Interview responses were coded to help identify “meaningful patterns of response” (Hague, 1993, p.47). Coding is defined as “the process for categorizing qualitative data and describing the implications and details of these categories” (Trochim, 2001, p. 160). Open coding techniques were used initially to help establish the categories. Selective coding was used to place interview results into the appropriate categories. Constant comparative analysis is the scheme utilized as the coding process to “unitize” and to “categorize” (Tashakkori and Teddlie, 1998, p. 123) the narrative text collected from interviewees. The data collected from these questionnaires was used in collaboration with the interview findings and available broadband Internet coverage data to arrive at conclusions. Because of the types of data collection methods being utilized, interviews and questionnaires, and also due to the inclusion of some of the participants in the research process, data triangulation (Patton, 1987) is used as the primary preventative technique to ensure construct validity (Yin, 2003). A parallel mixed analysis (Tashakkori & Teddlie, 1998, p. 127) of interview results and questionnaire statistics, as well as any inclusion of current trends and relevant literature will assist in reducing researcher bias and increasing the truthfulness of the description of this specific phenomenon (Denzin, 1978).

Findings and Discussion

This case study describes prevailing attitudes for an individual rural community in south central Kentucky, related to use the general e-readiness for online learning

strategies dependent upon broadband Internet. Three research questions were the focus of this research.

1. How will Internet-based, online course delivery methods be received by adult learners in this rural setting?
2. How does broadband Internet impact adult informal learning in rural areas?
3. What role do local government officials play, and what level of responsibility and liability should they accept as related to technology resources that impact the viability of community-based learning?

Seven themes were identified after an analysis of interview transcripts and questionnaire data. The seven themes are:

1. Importance of high-speed Internet availability,
2. Attraction of professionals to the area,
3. The “missing generation”,
4. Common solutions & working together,
5. Lack of vision for online learning,
6. Changing cultures and demographics, and
7. State & local government’s role and regulatory policy.

Each of the interviewees indicated an awareness of the importance of broadband Internet as the impetus to achieve specific economic and personal growth objectives as well as educational improvements. This pattern was among the easiest to identify primarily due to the topics discussed during the interviews, but also because each of the interviewees had personal experience with the needs expressed collectively by the community. The elected leaders all indicated that business and industry, as well as individuals are now looking for high-speed Internet as a basic service in the area as one determinant when deciding whether to relocate to a community. The importance to individuals was indicative in one response that described an acquaintance that has bought and sold homes using the Internet. The lack of access speed was also reported as at least one primary cause of many residents who choose not to use the Internet at all, as summed by “*This is primarily because people may have high-speed access at work and then go home to dial-up, then*

because of heightened expectations from their Internet access at work they are disenfranchised by the much slower speeds." At least two respondents compared broadband Internet deployment to the electrification efforts in the United States in the 1930's and 1940's, while others concentrated on its importance to economic growth and stability.

Most respondents also recognized the need for attracting people from outside the county which would likely have a positive, cumulative effect on the economy as well as attitudes toward online learning. According to one respondent when referring to working professionals, *"they would build a nice home if they can have high-speed Internet service because they can work at home. They know that life in the county is beautiful but without high-speed Internet service they just can't do it."* Drawing such professional types to the area would impact the economy by expanding the property tax base, increasing employment opportunities, increase occupational tax revenues, enhance views on online learning due to previous exposure, and would assist in closing existing gaps in technological knowledge. Such professionals are also likely to expect governmental innovations such as electronic tax payment systems, other municipal-based online services, and current information concerning fiscal, regulatory, and administrative policies (Phang, Sutanato, Kankanhalli, Tan, & Teo, 2006; Atkin & Jeffres, 1998).

The Internet only became widely available in the 1990's, and high-speed Internet sometime later. The computer revolution that began at the very end of the 20th century caught many adults unprepared and in many cases unwilling to invest the time necessary to learn key skills. Children growing up with computers and subsequently the Internet are dealing with this and other technology differently simply because they were raised with the advances. Computers are now routinely used in schools and many homes have computers. This theme emerged because several respondents identified most people in a particular age group as deficient in computing and Internetworking skills. The age varied slightly but seemed to consist primarily of older *baby boomers* in what was labeled by one respondent as a "lost generation." The concept of lost generation is not a new one as considerable interest continues to be generated in learning style differences between baby boomers, generation Xers, and millennials (Oblinger, 2003). Baby boomers are considered those born 1946 through 1964, genXers from 1965 through 1980, and millennial learners post 1980, with each group having formed their own unique perspectives regarding technology (Aviles, Phillips, Rosenblatt, & Vargas, 2005). Not surprisingly, Gen-Xers and millennial learners are generally less resistant to technology

because it is considered a normal and integral part of the environment in which we live.

This clash of the generations may be the cause of those more comfortable with computers and the Internet contending that public schools remain inadequate in the application of technology (Oblinger, 2003). Younger learners also use the newest forms of technology to communicate like iPods and MP3 devices, and text and instant messaging. The logical conclusion may be that such tools should be used to help these young people learn (Aviles, Phillips, et.al, 2005; Oblinger, 2005; Dillon-Marable & Valentine, 2006) in formal settings as well as informal ones. There also remains a significant barrier in that many people simply do not see a computer as a justifiable expense. This was perhaps partially reinforced by examining the questionnaire results with twelve (12) *No Computer* responses. While the number of questionnaires is insufficient to draw reliable statistical conclusions, this is a seven percent (7%) no response rate.

Considerable time was spent discussing comments on beliefs about people and what drives decision-making. The belief expressed is that when facing a common problem and provided with common information that most people will arrive at a single solution. Funding was eventually raised as an issue and the whole concept of value proposition was discussed during several interviews. It was indicated that as the county budget was being prepared, that the lack of sufficient tax-based revenue is perhaps the single largest issue the county faced. Although getting high-speed Internet throughout the county is "probably a big investment", all respondents felt it one worth making. As leaders of the community, it was generally accepted that it is their job to convey to people the worthiness of this goal. The problems faced is the legacy from prior administrations in the form of declining occupational tax base, and a budgetary process often performed privately causing distrust among citizenry. The overwhelming consensus among the respondents was the clear need for broadband Internet coupled with reluctance by many in the community to invest any money into such a project. Another respondent believed that people in this small, rural community would much rather relish in their shared families histories than to invest in a way that will insure continued viability of the area.

Each respondent expressed the need for expanded online learning by adults in the community, but never communicated specific needs. The general frame of reference was that of improved status through job acquisition or promotion. One elected official did note that as adults

we should never stop learning, while others doubted whether many older adults would invest the time unless required to do so. One respondent did have a vision for learning beyond vocational based need. The concept was integrated with the “social clubs mentality” that many people in this rural community valued.

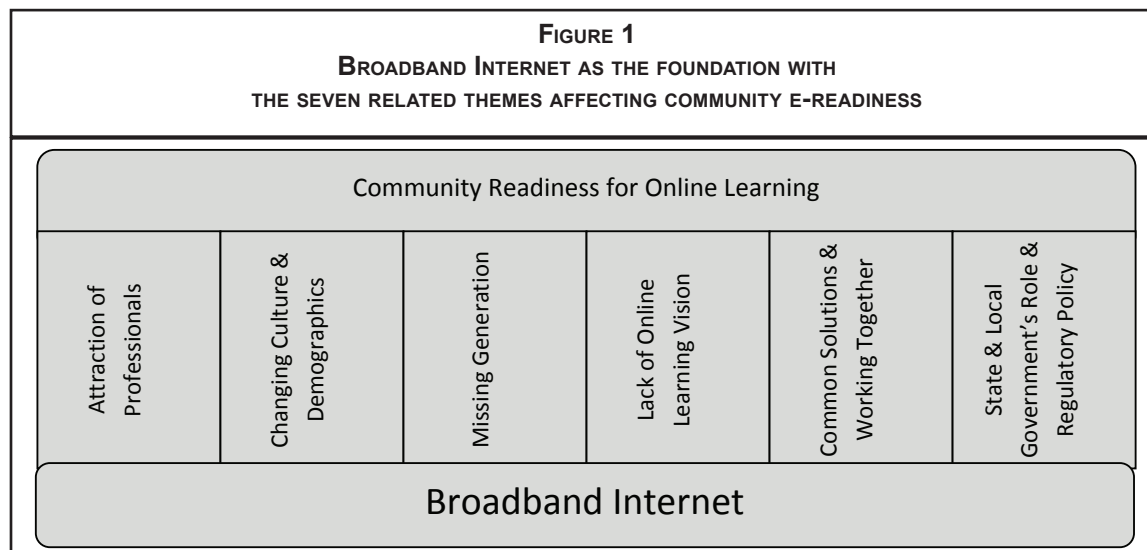
Only one respondent felt that local government should be in the business of either providing broadband Internet service, or at least subsidizing its existence. Because these people are all on the same leadership team, one would expect more discussion on this topic. The reasons most given by those who do not believe that local government should be involved were that private business possesses the need human and financial capital, and that the public sector should not be competing with the private. One respondent stated, *“I think there are some things that local governments don’t really need to be competing against the private sector...the phone companies can do a better job than we could.”* This is also a prime example of a reference to DSL service as being the only alternative for high-speed access. One dissenting voice felt strongly that local government must play a critical role in this area.

The model depicted in Figure 1 presents broadband Internet as the foundational cornerstone with seven thematic categories that have significant influence on the readiness and acceptance of online learning in this rural community. Broadband Internet is necessary for online learning to occur but shouldn’t be considered the lone solution. Each of the themes discovered during research must also be addressed to foster positive attitudes and acceptance of learning via the Internet.

Conclusion

If what we know can really be described as a function of the communities in which we participate (Wood & Judikis, 2002; Nelson, 1993) and not just our own individual thinking process, then the reasoning for empowering rural areas becomes more persuasive. High-speed Internet is only one potential influencing factor for an educated rural community (Thompson, 2002) but as this research indicates, critical to online learning acceptance. The rationale for broadband Internet deployment into all areas of the United States is simple; provide access, train the public, and measure effects so that adjustments can be made as needed. Educational attainment, social differences and income levels lower than metro-America are current distinctions between rural and urban areas (Mills & Whitacre, 2003). If technology is to support and meet the goals of communities by increasing the capacity of residents through online learning, associations and organizations are necessary to foster and sustain positive change (Pinkett, 2003), and rural America cannot be left out of the broadband plan. The digital divide is not going to “fix itself”, nor will it simply disappear. Simply providing broadband Internet to all people will not eliminate the digital divide (Servon, 2002), as it is posited that educating the public is also a critical component. Concerted efforts by both Federal, state, and when appropriate, local governmental bodies, are necessary to assist in bridging the gap. Private companies, although critical to the process, are unable to resolve this issue because of commitments to constituents demanding higher profits and returns on investment, and the uncertainty caused by territorial boundary disputes among traditional providers. Legislative bodies at

FIGURE 1
BROADBAND INTERNET AS THE FOUNDATION WITH
THE SEVEN RELATED THEMES AFFECTING COMMUNITY E-READINESS



the federal and state levels along with the executive leadership must transcend the normal political process of claiming unfounded successes and then accepting credit. We must instead learn from past successes like the electricity and telephone extensions into rural America in the late 19th and early 20th centuries. Ethical dilemmas are always multifaceted depending upon one's point of view. If one is on the privileged side of the divide then the tendency is to resist the use of public funding to assist less served areas. If you are on the underprivileged side of the divide then arguments that imply choice decides levels of service are likely to resonate bitterly. The issue that remains is that of equal access to broadband for rural Americans and the educational, economic, and social opportunities that accompany this challenge.

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A CRITICAL EVALUATION OF THE SERVICE LEARNING EXPERIENCE: IMPLICATIONS FOR HIGHER EDUCATION

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ABSTRACT

Much has been written regarding the merits of service learning being integrated into higher education course content. While reviews of the service learning literature suggest that favorable outcomes extend beyond the student and include faculty, colleges/universities, and/or the community, few studies have explored possible negative student perceptions and outcomes of these experiences (c.f., Kezar and Rhoads 2001). The purpose of this exploratory study was to examine student views of service learning before and after engaging in a service learning course experience. The results provide both positive and negative outcomes from the students' perspective, as well as non-significant results where significant service learning outcomes were expected. The results highlight the complex nature of assessing service learning outcomes and the importance and role of faculty members in managing these student experiences.

Introduction

The merits of integrating service-learning projects into course curricula are believed to be numerous. Reviews of the service learning literature suggest that favorable outcomes extend beyond the student and include faculty, colleges/universities, and/or the community (Eyler et al. 2001). Initial reflection on service learning would seem to suggest positive outcomes for all parties involved. However, multiple constituencies are involved in service learning projects leading to complicated assessment. Moreover, critics of service learning have suggested that service learning benefits fall apart when scrutinized (Neururer and Rhoads 1998) and that the time commitment and level of involvement on the part of the faculty member(s) involved in order to fully maximize the benefits may be underestimated (Barnes 2001). While a few studies have examined negative student perceptions and outcomes of service learning experiences (c.f., Kezar and Rhoads 2001), evidence related to service learning in business disciplines is sparse and in the marketing curriculum is practically non-existent (McIntyre, Webb, and Hite 2005).

Service Learning

Service learning is "a form of experiential education in which students engage in activities that address human and community needs together with structured opportunities intentionally designed to promote student learning and development" (Jacoby 1996, p. 5). Its use as a pedagogical tool is grounded in experiential learning – that the connection between education and personal experience enhances learning (Godfrey 1999) beyond that obtained in traditional lecture-style classroom settings. Since the passage of the National and Community Service Act of 1990, there has been increased interest in service learning initiatives at U.S. colleges and universities (Young et al. 2007), particularly since the act established a commission to provide grants to schools, colleges, youth corps and national service models. According to the Corporation for National & Community Service, national targets for 2010 are to engage 5 million college students in service, up from 3.5 million in 2005, and to double the number of higher education institutions matching the Segal AmeriCorps Education Award (received by AmeriCorps members for their service) or providing other incentives for volunteering (Corporation for National & Community Service 2007). These goals also include a national target of ensuring that half

of all U. S. higher education institutions provide at least one full-time person responsible for coordinating and supporting service on campus. Thus, service learning initiatives are expected to grow as higher education institutions are encouraged to participate in these efforts.

Service Learning Benefits for Business School Students

Though service learning was developed primarily in liberal arts courses, it is appropriate for all business disciplines; perhaps particularly well-suited in the marketing curriculum given its customer-focus (McIntyre, Webb, and Hite 2005). Positive outcomes of integrating service learning incorporated into course curriculum include cognitive skill development in the areas of critical thinking, communication, teamwork, problem-solving, time management, leadership, and analytical skills (Gray, Ondaatje and Zakaras 1999). This is of particular importance to business educators, since many of these skills are the same as the undergraduate assurance of learning standards promoted by accrediting agencies such as the Association to Advance Collegiate Schools of Business (AACSB). Service learning has also been shown to have a positive impact on undergraduate persistence, a growing concern among administrators as undergraduate retention and graduation rates have declined (Wolff and Tinney 2006). In addition to improved academic performance (e.g., grade point average), improved citizenship outcomes such as student values, plans to participate in service after college (Astin et al. 2000) and gaining an understanding of national and community problems (Astin and Sax 1998) have been cited related to service learning. Furthermore, business students may be able to benefit from these practical experiences by exploring career choices and enhancing their resumes prior to entering the job market (Berson 1994). The purpose of this exploratory study is to examine student views of service learning before and after engaging in a service learning course experience. Both scaled responses and open-ended questioning was used to gain a rich understanding of student views regarding these experiences.

Method

In order to gauge changes in student opinions based on the service learning experience, a pre-test/post-test experimental design method was employed. Students were questioned about their awareness of community issues, the importance of community involvement, perceptions regarding the service learning approach to education, and their views on the extent to which a service learning project would enhance their personal development. In

addition, demographic questions were asked for classification purposes. The questionnaire used in this exploratory study was developed using items adapted from the 2005 National Survey of Student Engagement (NSSE), as well as questions derived from student focus groups wherein students were asked to evaluate various aspects of their educational experience. The data was collected in a senior level marketing course at a public institution in the southeast. The course is not solely devoted to service learning; rather a service learning group project was a component of the course. As such, each student group was engaged in a different service learning project. Therefore, group experiences and outcomes may have differed between student groups. This approach allowed for varied experiences and may provide a better overview of service learning in general, than would be possible had all students worked on the same service learning project.

Results

The pre-test questionnaire was administered at the beginning of the course, with 84 students completing the instrument. Though some attrition occurred in the course, 69 students remained in the course at the conclusion of the semester and completed the post-test questionnaire. As shown in Table 1, male students represented most of those whom dropped the course. While 54% of students at the beginning of the semester were female, females represented 64% of the class at the end of the semester. Most (96% in the pre-test, 94% in the post-test) were seniors, and those who remained in the course were more likely to have completed a service project previously (23% in the pre-test and 29% in the post-test) as part of their college experience. T-tests were conducted for each survey item based on demographic

TABLE 1
STUDENT CHARACTERISTICS

	Pre-test n=84 Percents	Post-test n=69 Percents
Gender		
Female	54.2	63.6
Male	45.8	36.4
Class Standing		
Junior	3.6	6.1
Senior	96.4	93.9
Completed a service learning project previously		
Yes	22.9	29.4
No	77.1	69.1

characteristics. There were no significant differences based on gender, class standing, or prior service learning experience.

Community Issues

Students were questioned about their perceptions of community issues, the importance of community involvement, and their service learning experiences. As shown in Table 2, mean responses for items are shown for the pre-test and post-test, followed by t-test and p-values comparing the pre- and post-test results. Students were asked about the importance of becoming involved with a program to improve the community and the importance of finding a career that provided the opportunity to be helpful to others in society. Responses were measured on a 5-point scale (1 = not important, 5 = very important). The importance of becoming involved with a program to improve the community was rated a 3.64 and 3.79 (pre- and post-test respectively) by students, placing it between the “somewhat important” and “important” scale points. The importance of finding a career that provides the opportunity to be helpful to others in society was rated higher at 4.00 and 4.12 (pre- and post-test respectively) by students, placing it between the “important” and “very important” scale points. For both of these questions, mean responses in-

creased in the post-test when compared to the pre-test, but not enough to be significantly different.

Students were also asked their awareness of community issues. For this item, responses were measured on a 5-point scale (1 = strongly disagree, 5 = strongly agree); thus, the higher the mean, the stronger the agreement with the statement. As shown in Table 2, students were asked their level of agreement with the statement, “I have a good understanding of the needs and problems facing the community in which I live.” The pre-test mean response was 3.21; with a post-test mean response of 3.67 ($p = .000$), indicating a significant difference in the views of students following the service learning project. As might be expected following participation in a service learning project, students were more likely to report a better understand of the needs and problems facing the community. Even so, on the scale, a “3” was rated as “disagree,” while a “4” was rated as “agree.” Though the findings shifted more toward agreement in the post-test, the results reveal that even after participation in a service learning project more than one-third (36%) of the students disagreed with this statement.

Table 2
Student Perceptions of Community Involvement

	Pre-test Mean	Post-test Mean	t-test ¹ (p-value)
Importance of Community Involvement²			
Importance of...			
becoming involved with a program to improve my community.	3.64	3.79	-1.07 (.286)
finding a career that provides the opportunity to be helpful to others in society.	4.00	4.12	-0.92 (.358)
Awareness of Community Issues and Perceptions of Service Learning Approach³			
I have a good understanding of the needs and problems facing the community in which I live.	3.21	3.67	-3.79 (.000)
Working on group projects is more rewarding than working on individual projects.	3.61	3.23	2.24 (.027)
I learn course content best when connections to real life situations are made.	4.46	4.48	-0.14 (.888)

TABLE 3
STUDENT PERCEPTIONS OF SERVICE LEARNING EXPERIENCE

	Pre-test Mean	Post-test Mean	t-test [†] (p-value)
Reaction to a Course that included a Service Learning Project ⁵			
To what extent do you expect (this course) will contribute to your knowledge, skills, and personal development in the following areas:			
Acquiring job or work-related knowledge and skills.	4.00	3.93	0.55 (.59)
Write clearly and effectively.	3.33	3.19	0.95 (.35)
Speaking clearly and effectively.	3.81	3.84	-0.23 (.82)
Thinking critically and analytically.	3.95	3.94	0.09 (.93)
Working effectively with others.	4.17	4.24	-0.56 (.58)
Learning effectively on you own.	3.50	3.53	-0.22 (.83)
Understanding yourself.	3.12	3.07	0.28 (.78)
Understanding people of other racial and ethnic backgrounds.	3.01	2.75	1.70 (.09)
Developing a personal code of values and ethics.	3.19	2.84	2.13 (.04)
Contributing to the welfare of your community.	3.14	2.90	1.48 (.14)

Perceptions of Group Work and Real Life Connections

Service learning typically involves group work tied to real-world community projects. Because this is the most common approach to service learning, and the approach used in this course, students were asked their views on group work and course content that connects to real life situations. Specifically, students were asked whether they agreed with the following statement, "Working on group projects is more rewarding than working on individual projects." As shown in Table 2, responses were measured on a 5-point scale (1 = strongly disagree, 5 = strongly agree). The pre-test mean response was 3.61; with a post-test mean response of 3.23 ($p = .027$), indicating a significant difference in the views of students following the service learning project. Perhaps surprisingly, students were less likely to agree with this statement in the post-test as compared to when they were questioned in the pre-test. As is a risk with all types of group projects, teammates may not equally participate, meet required deadlines, and/or get along well with others in the group. Though one might expect that working

together on a service learning project that benefits the community might increase the likelihood of a positive group experience – if for no other reason that altruistic motivations – this appears not to be the case for this class. Open-ended responses regarding their experiences with the service learning component of the course confirmed that not all projects went smoothly. This finding also highlights the difficulties in managing group projects and the pitfalls that may occur for both students and faculty that incorporate group projects into course curricula.

Though students were less likely to agree that group projects were more rewarding than individual projects, student did respond favorably to the statement, "I learn course content best when connections to real life situations are made." As shown in Table 2, ratings were 4.46 and 4.48 (pre- and post-test respectively), indicating high agreement for this statement. Though not significantly different between the pre- and post-test, the scores for the post-test were slightly higher indicating that despite difficulties that may have arisen due to teammates with-

in a group, students found the real-world projects to be a valuable pedagogical method.

Personal Development and the Service Learning Experience

Students were also asked the extent to which this course contributed to their knowledge, skills, and personal development in a variety of areas. Items were measured on a five-point, ordinal scale ranging from 1 (not at all) to 5 (very much). Perhaps the most surprising findings in the study were student reactions to these questions. As shown in Table 3, responses ranged from 4.17 (work effectively with others) to 3.01 (understanding people of other racial and ethnic backgrounds) in the pre-test. Responses ranged from 4.24 (work effectively with others) to 2.75 (understanding people of other racial and ethnic backgrounds) in the post-test. For seven of the ten items, mean responses went down in the post-test as compared to the pre-test; with significantly lower results ($p = .035$) for developing a personal code of values and ethics.

Though post-test means were higher for speaking clearly and effectively, working effectively with others, and learning effectively on your own, none of these means were significantly different than those reported in the pre-test. Further, many of the results shown in Table 3 are contrary to the predicted direction based on prior literature that suggests that service learning increases student skills, self-efficacy, student ethics and community welfare orientation.

Most Important Things Learned

Although metric measures of student reactions to service learning appear to indicate that these projects did not have the intended influence on student skill development, values and ethics, and interest in community welfare, open-ended responses to a question asking students what they learned from service learning projects revealed that students reported gaining both important business and community sensitivity skills. As shown in Table 4, students reported skills commonly associated with group projects such as team work, time management, group dynamics, leadership, responsibility, and organization skills. In addition, "soft skills" such as compassion, selflessness, and intrinsic rewards were reported. These qualitative findings suggest that while some groups may have had negative group experiences, overall students gained business and community sensitivity skills, as hoped. These self-reported benefits also raise questions as to whether survey-type assessments adequately capture service learning outcomes.

Discussion and Conclusions

The findings of this exploratory study suggest mixed results with regard to service learning integrated into business curricula. While students anecdotally reported improved cognitive and affective skill development associated with service learning, metric assessments using pre-test and post-test results do not bear out these results. In fact, some anticipated outcome measures declined following student involvement with a service learning project. Admittedly, this is an exploratory study limited to the experiences of students enrolled in one marketing course. Further research is needed using larger student samples across a variety of business disciplines in order to more accurately ascertain the benefits (and pitfalls) associated with service learning incorporated into business courses.

Like all courses in higher education, student achievement in courses that incorporate service learning projects may vary by student, instructor, course type, and semester. Given the unique nature of each service learning assignment, and the tendency among business faculty to assign groups to engage in service learning experiences, a number of variables could impact the success of these courses and service projects. Future researcher should seek to create measurement tools that differentiate between group experiences and the service nature of these projects. That these evaluations were intertwined is suggested by the negative reaction to the question, "Working on group projects is more rewarding than working on individual projects," and yet the positive reaction to the statement, "I learn course content best when connections to real life situations are made."

Lastly, business student expectations of these types of experiences may differ from those of liberal arts students. It should be noted that one of the highest-rated skills in the pre-test and post-test was "acquiring job or work-related knowledge and skills." Perhaps business students are more likely to view these experiences as a quasi-internship rather than a community service effort. While this study did address to what extent students expected the course to contribute to their knowledge, skills, and personal development, the focus was on the course overall rather than the service learning experience per se. Future studies should compare business student expectations of service learning outcomes to the expectations of service learning outcomes of other majors. Perhaps projects clearly tied to work-related skill development would be more favorably received by business students.

Overall, the findings from this exploratory study suggest that more research is needed on the benefits and pitfalls

associated with student experiences with service learning in business schools. Though few would argue with the assumption that the benefits associated with these experiences likely are worth the time and effort, educators should be aware that integrating service learning

TABLE 4
COMMENTS CONCERNING
SERVICE LEARNING PROJECTS

Most important things learned:

Business Skills

- Team work
- Time management
- Group dynamics
- Leadership
- Responsibility
- Organization

Community Sensitivity

- How to relate to people
- Compassion
- Gratitude
- Cultural differences
- Selflessness
- Rewards of helping people

into course curricula involves careful planning, ongoing management, and effort on the part of the instructor in order for students to gain the maximum benefits associated with this type of pedagogical approach.

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1 T-tests and p-values shown in bold are significant at the $p < .05$ level.

2 Items measured on a five-point scale as follows: 1=not important, 2=least important, 3=somewhat important, 4=important, 5=very important.

3 Items measured on a five-point scale as follows: 1=strongly disagree, 2=disagree somewhat, 3=disagree, 4=agree, 5=strongly agree.

4 T-tests and p-values shown in bold are significant at the $p < .05$ level.

5 Items were measured on a five-point scale as follows: 1=not at all, 2=very little, 3=some, 4=quite a bit, 5=very much.

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Conferences

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