Redesigning a Capstone Class, from the Perspective of the Student

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Abstract

The Business & Information Technology Department at Montana Tech of The University of Montana redesigned its strategic management capstone course from a pedagogy of transmission to a pedagogy focusing on student engagement through a problem-based learning approach. The students completing the redesigned course were very positive with the new approach and preferred it to the traditional lecture based style. In addition, the students agreed that the course was successful in satisfying its stated objectives but they also indicated that direct exposure to critical thinking before this class would be beneficial.
Introduction

Recent studies have stated that today’s college students are less engaged than their predecessors and business students are typically singled out as the least engaged students across any campus. According to the most recent National Survey of Student Engagement, nearly half of the seniors studying business spend less than 11 hours a week studying outside of class, less time than students in any other broad field of study (Glenn, 2011). Research by Arum and Roksa (2010) reported that 45 percent of students did not show significant improvement in a range of skills during their first two years of college. The authors singled out business students as the worst performers. The faculty members of the Business Department at Montana Tech had discussed this problem over the years as they believed their students were following a path similar to the business students identified in these studies.

The Department attempted to address the issue of student engagement over the previous two years as it changed the approach and requirements of its strategic management course. This course, which serves as the capstone course for the business program, had evolved into an online course that focused on three or four case write ups and student discussion through the use of an online discussion board. The revamped course was brought back to a traditional classroom environment with mandatory attendance and discussion. The course was also changed to include a business simulation and a more significant communication piece was added as the students were required to make two formal presentations to the board of directors of their company from the business simulation. The new version of the course employed a standard textbook and the topics from the text were presented by the instructors in a traditional lecture style complete with PowerPoint slides provided by the author of the text. A second instructor was also added to the course as an effort to promote discussion and divide the workload. The overhauled course was
considered to be a success but it appeared that the Department was still having a difficult time connecting to its average students. The better students would come to class prepared and generally dominate the discussion while the average students attended class but usually only spoke when called upon and typically they offered no additional insight to the discussion. The average students seemed to be more concerned about watching the clock rather than the course content.

The Move to Redesign the Delivery of a Capstone Course

This past fall the Department faculty still believed its students fell short of the level of engagement desired for all students and continued its discussion regarding appropriate teaching methods for its strategic management class. This time one of the newer faculty members suggested we attempt to fully integrate an active learning pedagogy into the course. The formal assessment of the students would continue to use the requirements from the prior strategic management courses including exams, case discussion and write ups, a business simulation, and a term paper, but the delivery of the material would change from a pedagogy of transmission to a pedagogy of engagement. Specifically the course would move away from a traditional lecture delivery approach to a format where the students would be directly responsible for the discussion and the direction of the dialogue.

The decision to change was supported in the literature. According to DiCarlo (2009), the traditional delivery format does not allow time for teachers to help students “develop lifelong skills such as critical thinking, problem solving, communication and interpersonal skills” (p.258). Russ Edgerton, as cited by Smith, Sheppard, Johnson and Johnson (2005), is given credit for the concept of pedagogies of engagement in his 2001 Education White Paper in which he wrote:
“Learning about things does not enable students to acquire the abilities and understanding they will need for the 21st century. We need new pedagogies of engagement that will turn out the kinds of resourceful, engaged workers and citizens that America now requires” (p.36).

Since Edgerton introduced the concept of developing pedagogies that engage students, much has been written that indicates engaging students with active-learning strategies will deepen a student’s understanding of the course concepts (Heller, Biel, Dam, & Haerum, 2010; Kuh, 2009; LaNasa, Cabrera, & Transgrud, 2009; Zyngier, 2007).

In addition to improving student engagement, the Department also decided to implement a deep learning process which encourages students to move past the surface learning process of temporarily recalling facts and ideas (Beattie, Collins, & McInnes, 1997). This change would allow a shift from an environment where the instructor shares only knowledge to a setting where the students would be able to apply business concepts learned in previous courses to address issues presented in a strategic management setting. The Department faculty hoped that engaging deep learning would enable students to synthesize the content addressed in previous courses, reaching an understanding of core concepts which permits integration of the concepts into new applications (Floyd, Harrington, & Santiago, 2009; Nelson Laird, Shoup, Kuh, & Schwarz, 2008).

The active learning approach was new to the Department and to the instructors who were all very comfortable and entrenched in their personal course delivery styles. The Department saw this as a potential step in the right direction but nonetheless was unsure as to how both the students and the instructors would adapt to this new model.
**Designing an Active-learning Capstone Course**

The faculty members discussed the idea of changing the delivery of the strategic management course and as it turned out there was so much interest in this experiment that the excitement to attempt an active-learning approach far overshadowed any fear that this method would flop. Three instructors declared a genuine interest to be involved in the course and it was determined that the three would be able to work together and individually they possessed unique experiences that would help the students with the different aspects of the course. The three instructors were able to come to agreement as to the basic content and delivery of the course but all were apprehensive regarding the actual outcomes for the class and whether the students would share their enthusiasm for the new approach.

**Course Learning Objectives**

The syllabus for the new strategic management course was written to incorporate active learning terminology directly from the literature into the course objectives and outcomes. According to the course syllabus, the learning objectives for the course were:

1. To develop the capacity to think critically and strategically about a company, its present business position, its long-term direction, its resources and competitive capabilities, the caliber of its strategy, and its opportunities for gaining sustainable competitive advantage.
2. To build skills in conducting strategic analysis in a variety of industries and competitive situations and, especially, to provide a stronger understanding of the competitive challenges of a global market environment.
3. To provide for a hands-on experience in crafting business strategy using business simulations, to reason carefully about strategic options, using what-if analysis to evaluate
action alternatives and making sound strategic decisions. This is what we call active learning, and this learning only takes place with student involvement.

4. To acquaint students with the managerial tasks associated with implementing and executing company strategies. Harvard Business case studies will be used as problem-based activities to give students the opportunity to comprehend the range of actions managers can take to promote competent strategy execution in real-life situations. This is intended to instill confidence in students so they can effectively contribute as part of a company’s strategy-implementation team.

5. To integrate the knowledge gained in earlier courses in the business curriculum by applying the process-oriented guided individual learning, allowing students to demonstrate how the various pieces of the business puzzle fit together, and why the different parts of a business need to be managed in strategic harmony for the organization to operate in a winning fashion.

6. To heighten awareness of how and why ethical principles, core values, and socially responsible management practices matter greatly in the conduct of a company’s business.

7. To develop powers of managerial judgment, learn how to assess business risk, and demonstrate how to make sound business decisions and achieve effective outcomes.

Use of Class Time

The redesigned capstone course in essence scrapped the lecture approach and replaced it with a variety of methods designed to employ an active engagement pedagogy. Students were given a detailed introduction at the start of the semester to critical thinking methods, Socratic questioning methods, problem-based learning methods, process-oriented guided inquiry methods, and collaborative learning methods. The instructors led the detailed discussions on
each of the methods presented at the beginning of the course and clearly emphasized how each
method would be employed by the students and instructors throughout the remainder of the class.
After the introductory phase, the students knew that the instructors would step to the side and
become participants in student led discussions.

It was decided that in lieu of a textbook the students in the revamped class would engage
in the write up and discussion of nine different topics related to strategic management. Students
were asked to find academic articles, from peer-reviewed journals, and, for each of these topics,
write a summary of the article and participate in an open forum discussion of the topics. To
facilitate group discussions, students were randomly assigned into groups as small as four
students or as large as one large group arranged in a circle. All students were required to present
their article selection regardless of the size of the group.

The students were also required to write up and discuss five Harvard Business School
case studies over the course of the semester. The instructors had introduced the case study
approach with a sample case and the discussion for each of the five assigned cases was
completed over two class meetings and was again led by the students. Virtually all of the
students had been exposed to some form of case approach in their other classes at Montana Tech
but the cases selected for this course were more comprehensive in that they could belong in a
graduate program.

The three instructors also determined that the simulation was valuable only if the students
provided an appropriate effort. The students, with the understanding that it would help them get
the most out of the simulation, allowed the instructors to set up semi-formal sessions, related to
the business simulation, outside of the scheduled class meeting times. These outside sessions
allowed the instructors to elaborate on a number of items including the operation of the business
simulation to an introduction on how to make a presentation to a board of directors. These sessions were not formally required but each student led company in the simulation had at least one member in attendance at each session.

**Results of Changes in the Capstone Class**

On the first day of class the three instructors addressed the 40 graduating seniors and advised the students that this course would be more intensive and rigorous than any class previously completed. Students were informed that attendance and participation were mandatory. The discussion then turned a direction that no Montana Tech business student had ever gone. The instructors stated that students completing a capstone course are expected to demonstrate their mastery of subject matter taught in previous courses. As such, there was no textbook required for this course and students would be required to recall information learned in previous classes and be able to apply it to situations involving strategic management. The students were also told that the class would not follow a traditional lecture format and the students would be required to lead the classroom discussion. It was at this time that one student described the situation as, “in ten minutes the tone of the class changed from boundless enthusiasm to abject terror.”

**Observations from the Instructors**

Initially, the students and the instructors were unsure as to what to expect as the students in the Tech business curriculum had never been held so directly responsible for their learning. Both the students and instructors seemed to gain confidence over the course of the semester as the students became engaged in each classroom discussion. The instructors were accustomed to an environment of control and the class gained momentum through the instructors’ eyes as the students were quick to take control of the discussion. The instructors had seen these students in
other lecture-based courses where these students were typically not attending classes as prepared as they should be, waiting for class to end and waiting for their neighbor to talk when the instructor asked a question. Under the new format, these same students would often extend this class beyond its allotted 75 minutes in order to wrap up the discussion or class activity. There were a number of the students in this class, who had been among the poorer performers in other lecture-based classes, who actually excelled in this new format and performed far beyond the expectations of any of the instructors. These students, who were quiet in other classes, actually seemed to find their voices and were able to provide some insight into any given conversation. Most of the students in this course were enrolled in another senior-based course that met immediately after the strategic management course. The instructor of this course has asked for a new meeting time for next year as he said the students were basically spent after the strategic management class and he stated that it was difficult to get them involved in his lecture-based course.

Finally, a primary instructor concern going into this course was the issue of attrition through students dropping the class. Historically, about 20 percent of the students enrolled in Tech’s strategic management class have dropped the course and the concern was that this would increase after the new format was disclosed. As it turned out, two students dropped the course in the first week of instruction and the remaining 38 students went on to successfully complete the course.

**Student Surveys**

The 38 students who finished the course were asked to participate in two separate surveys. The first survey was the general student survey adopted by Montana Tech for all of the courses offered at the campus and 24 of the 38 students completed this survey. A second course-
specific survey was given to the students, 33 of whom completed it. Table 1 summarizes the findings from the surveys, both of which asked for Likert scale responses.

Table 1. Student Observations of the Strategic Management Course offered at Montana Tech, Spring 2011

<table>
<thead>
<tr>
<th>Likert Scale Responses</th>
<th>Mean(SD)</th>
<th>Range</th>
<th>% Disagree</th>
<th>% Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I enjoy the lecture style of classroom teaching.</td>
<td>3.6(0.8)</td>
<td>2-5</td>
<td>9.1</td>
<td>60.6</td>
</tr>
<tr>
<td>I learn best in a classroom environment were the instructor uses PowerPoint and I sit and take notes</td>
<td>2.9(1.0)</td>
<td>1-5</td>
<td>33.3</td>
<td>33.3</td>
</tr>
<tr>
<td>I have been exposed to critical thinking in classes throughout my years in college</td>
<td>3.2(0.9)</td>
<td>2-5</td>
<td>30.3</td>
<td>42.4</td>
</tr>
<tr>
<td>My exposure to critical thinking in this class is similar to how critical thinking has been taught in other classes</td>
<td>2.5(1.0)</td>
<td>1-5</td>
<td>54.5</td>
<td>12.1</td>
</tr>
<tr>
<td>Having been exposed to a class that was structured around critical thinking, I found that I looked forward to coming to class.</td>
<td>3.0(1.1)</td>
<td>1-5</td>
<td>33.3</td>
<td>36.4</td>
</tr>
<tr>
<td>I would have liked to have taken a class on critical thinking and decision making earlier in my career at Montana Tech.</td>
<td>4.1(0.9)</td>
<td>2-5</td>
<td>9.1</td>
<td>84.8</td>
</tr>
<tr>
<td>I would recommend that more classes be taught using this method of instruction that involves the student in their learning.</td>
<td>3.9(0.9)</td>
<td>2-5</td>
<td>9.1</td>
<td>66.7</td>
</tr>
<tr>
<td>The instructor encourages class discussion/participation.</td>
<td>4.6(0.6)</td>
<td>3-5</td>
<td>0.0</td>
<td>95.7</td>
</tr>
<tr>
<td>The instructor asks questions of the students.</td>
<td>4.7(0.5)</td>
<td>4-5</td>
<td>0.0</td>
<td>100.0</td>
</tr>
<tr>
<td>The instructor is willing to listen to student questions and opinions.</td>
<td>4.6(0.5)</td>
<td>4-5</td>
<td>0.0</td>
<td>100.0</td>
</tr>
<tr>
<td>The instructor has a concern for the quality of teaching and learning.</td>
<td>4.6(0.5)</td>
<td>4-5</td>
<td>0.0</td>
<td>100.0</td>
</tr>
<tr>
<td>The instructor encourages students to challenge themselves and do high quality work.</td>
<td>4.7(0.5)</td>
<td>4-5</td>
<td>0.0</td>
<td>100.0</td>
</tr>
<tr>
<td>The quality of teaching was very effective in contribution to my learning</td>
<td>4.4(0.8)</td>
<td>2-5</td>
<td>4.3</td>
<td>91.3</td>
</tr>
</tbody>
</table>

a Student observations were measured using a Likert scale with the following breakdown: 1 "Strongly disagree", 2 "Disagree", 3 "Neutral", 4 "Agree", and 5 "Strongly agree" 

b % Disagree represents the percentage of those students who responded with either 2 "Disagree" or 1 "Strongly Disagree"  
c % Agree represents the percentage of those students who responded with either 4 "Agree" or 5 "Strongly Agree"  
d Results taken from a student survey written specifically for the Strategic Management class (sample size = 33)  
e Results taken from a the general student survey required for all courses at Montana Tech (sample size = 24)

The Likert-scale questions uncovered a few themes regarding the new strategic management format. It appears a majority of the responding students enjoy the traditional lecture style of teaching but it seems that they do not believe they learn best in a lecture based, or transmission, environment where they take notes from an instructor’s PowerPoint. It also
appears that our students have not been directly exposed to critical thinking in their other courses at Montana Tech. The respondents not only want earlier exposure to critical thinking it appears that they would like to enroll in more classes taught under an active learning approach. Additionally, the questions related to the instructors ended up being very supportive of the instructors’ efforts. The numerical averages for the instructor questions in this course were higher than the averages for any of the other classes individually taught by the three instructors.

The survey given only to the strategic management class also asked the students a number of questions that were not based on a Likert scale but were open-ended, seeking additional insight into their perspective on the class. Table 2 summarizes these questions.

Table 2. Student Observations of the Strategic Management Course offered at Montana Tech, Spring 2011
Non Likert Scale Responses (N = 33)

<table>
<thead>
<tr>
<th>Question</th>
<th>% Yes</th>
<th>% No</th>
<th>% No response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you believe you are able to demonstrate the outcomes of this course after the successful completion of this course?</td>
<td>100.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Were you prepared for the amount and type of work required in this course?</td>
<td>54.5</td>
<td>27.3</td>
<td>18.2</td>
</tr>
<tr>
<td>This course attempted to avoid a traditional lecture format. Did you prefer the format of this course as compared to the traditional lecture format?</td>
<td>97.0</td>
<td>3.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Do you believe this course, the department capstone course, properly prepared you for either entry into the workforce or into graduate school?</td>
<td>97.0</td>
<td>3.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

To summarize the findings presented in this table, the students overwhelming stated they believed they achieved the active learning based course outcomes. Additionally, they preferred the format of this course over a traditional lecture format and believe the course helped prepare them for graduate school or entry into the workforce.
A number of respondents took the time to offer additional insight towards the format of the course. Fourteen students offered additional positive support for the new format with written comments. The comments included “this format was great” to “I loved this approach.” Not all the comments were positive as three students went on to say that they believed this format added stress. Four of the respondents mentioned this course addressed their time management skills and forced them to pay attention to deadlines. Four of the students specifically mentioned that not only did this course adequately prepare them for a job or for graduate school, but they thought this course did a good job of tying together the entire business curriculum. Also four of the students identified that they were afraid of the requirement regarding the recollection of information presented in previous business courses. All four went on to say that they felt they were able to recall material used in prior classes and apply it to strategic management issues. Two students stated this course helped them to speak out in class. Finally, only one respondent thought there was too much work expected in this course and suggested that less work and fewer time consuming assignments be considered.

Changes Adopted for the Current Academic Year

The Department has made a number of changes for the new academic year as a direct result of the success of its strategic management class. A three credit special topics course devoted to critical thinking and decision making was added to the fall semester schedule. This class has been designed to reach beyond the Business Department and a number of students outside the Department have enrolled in the course. Additionally, the course has been accepted as part of the Montana Tech Honors Program curriculum. The Department has also used this experience to change the delivery in its freshmen level introduction to business course. A number of the positives from the strategic management course have been introduced to the
freshmen business students. These students will be engaging in a business simulation, article reviews, and case studies all appropriately adjusted to their limited business backgrounds. Finally, all the senior level courses in the Department will be revamped in a manner similar, but in a smaller scope, to the strategic management class and taught in a more active format with additional emphasis on student engagement and student-led learning activities. The Department will consider applying this approach to its junior level courses next semester if the experience in the senior level courses proves to be similar to the results of the strategic management course. All things considered, the Department is currently making plans to implement the process throughout its entire curriculum over the course of the next few years and is also looking to incorporate the active learning approach into its assessment process.
References


