

A Research-based Approach to Teaching Critical Thinking in Strategic Management

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Critical thinking is one of the expected outcomes and major goals of post-secondary education. I develop an integrated approach to teaching critical thinking in strategic management. Using data collected from graduate students who took a strategic management course using the approach, I found empirical support for the proposed approach. I found that both the content and course design facilitate critical thinking in strategic management. I also found the mediation effects of pedagogy and practices. These findings suggest the important roles of pedagogy and practices which serve as the mechanisms that underlie the relationship between content and critical thinking.

INTRODUCTION

Critical thinking is one of the expected outcomes and major goals of post-secondary education. It allows students to reason, use judgment (McMillan, 1987) and become independent thinkers. The skill is very important for students in their lives. Ennis (1989) identified three ways of teaching critical thinking: dedicated, infusion and immersion courses. Dedicated course is a course that is solely dedicated to teaching critical thinking. In infusion course, critical thinking is taught explicitly with other disciplinary subject. This paper reports my experience teaching critical thinking in strategic management using the immersion approach where critical thinking is required but was not explicitly taught.

Strategic management courses are capstone courses which are complex, integrated and multidisciplinary. In most universities, the courses are only available for seniors and the final year graduate students. Teaching and learning strategic management courses require both the comprehension of the complex disciplinary content and its way of reasoning. Thus, teaching such courses requires the ability to explain the complexity of the content and cognitive ability such as critical thinking.

This paper fills the gap in critical thinking literature where studies in a specific area such as strategic management are lacking. The contribution of the present paper is its holistic approach to teaching critical thinking in strategic management. More specifically, it is its design of how to organize, assimilate, and systematize the complex content; effective use of course design, and the selection of pedagogy and practices that allow students to develop critical thinking in strategic management. In general, this paper contributes to the literature by improving our understanding of teaching critical thinking and current practice of teaching (Corley & Gioia, 2011) and by extending and testing the model proposed in a new context of strategic management (Whetten, 1989).

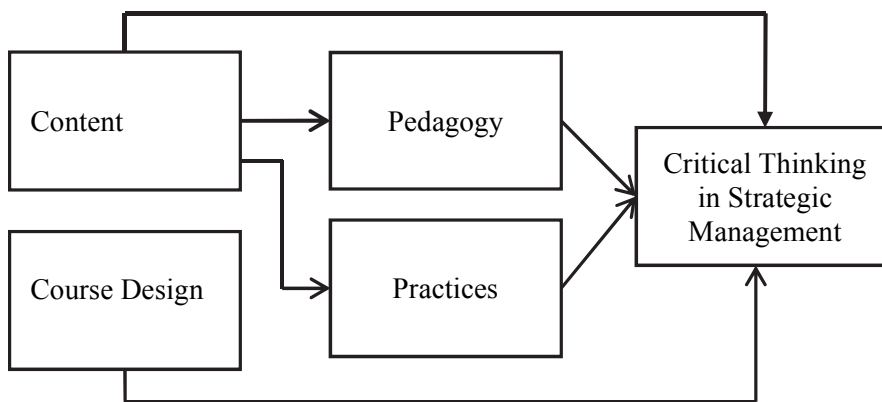
The paper is structured as follows. In the literature and hypotheses development section, I discuss the teaching approach and define the construct of strategically critical. I then propose several hypotheses. The

next section reports data collection, analysis, and results. It respectively follows by the discussion section. Finally, I examine the managerial and theoretical implications and limitations and future research.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Based on the existing literature in teaching and teaching critical thinking and my own experiences, I develop an integrated approach to teaching critical thinking in strategic management. I summarize the approach and thus the structure of the paper in the model below.

**FIGURE 1
RESEARCH MODEL**



Critical Thinking in Strategic Management

Critical thinking is a cognitive process that allows us to arrive at the conclusion of what to believe or what to do (Ennis, 1996). Scriven and Paul (1987) conceptualize critical thinking as a process that “actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action.” I define critical thinking in strategic management as the ability to create strategic decisions by implementing strategic knowledge in both the identifying, understanding, analyzing and synthesizing of the strategic situations and the exploration and evaluation of alternative views and solutions and their assumptions and implications.

Content

The content of strategic management courses is usually very rich and complex. Graduate strategic management courses usually cover both competitive and corporate strategies. Competitive strategy is related to the strategic management of an individual firm. Corporate strategy studies the strategic management of a group of firms. In order to clearly convey the content I use various ways to organize, assimilate, and systematize the content.

I develop lecture power points to capture and summarize the amount of information. In order to help students comprehend the content and their relationships, I summarize and integrate the content into five inquiry questions of the course. I also develop models such as a process model of competitive strategy to represent the complex strategic situations and show how the concepts are sequenced and related. I develop a checklist to further explicate the five question and concepts in the model. Thus, the checklist is a very important tool of teaching and learning.

I believe that content organization will facilitate the deep learning and development of critical thinking in strategic management. For example, previous researchers have suggested the importance of

developing knowledge structure or model in higher education (Bligh, 1998; Nilson, 2010) and more specifically in strategic management (Grant, 2008). Researchers found that our brains store, process and retrieve knowledge as coherent and interconnected parts, not as a collection of information (Bransford, Brown, & Cocking, 1999; Svinicki, 2004). Thus, they believe that without such as a structure or model students will fail to comprehend and retain what they learn.

Based on the discussion in this section, I hypothesize:

H1: The content of the course improves students' critical thinking in strategic management.

Course Design

I describe below various issues related to the course design.

Syllabus. The syllabus contains most parts of the course design. I discuss in the syllabus the approach of the course. For example, I discuss the goals and objectives of the course. I discuss how the model, lecture, and class discussions are designed to model critical thinking. In general I attempt to describe how the idea of critical thinking is infused in and underlies the course.

Goals. Explicitly stating the goals of a course is very important. This is one of the ways to bridge the teaching and learning gap (Cross, 1988). I clearly discuss and state the goals and objectives of the course in the syllabus. The main goals are to learn how strategists think and what strategists do. More specifically the course helps the students to understand, craft, and evaluate strategies and understand the roles of strategists and the outcomes of strategy such as competitive advantage and shareholder value.

Objectives. Three specific objectives to be achieved are writing a strategic plan, annual report to the shareholder and performing a strategic management audit.

Textbook & optional book. I assign a textbook. The textbook serves as the core resource of the content of the course. It is supplemented with various optional articles and a book written by an academic and former CEO. This book complements the textbook as an exemplar of "strategic management in action."

Self-select Cases. I do not assign certain cases for the students. I ask the students to select cases they prefer (for their tests and group case assignments). The reason is that learning takes place when the materials are relevant (Svinicki, 2004) and experiential such as the one they are familiar with. Thus, I believe that students should have an option to choose cases which are experiential and relevant to them. The various different cases used by the students will ultimately enrich class discussions and critical thinking. Students usually are more excited working with the cases/ firms they choose. Overall, the self-select cases method promotes enthusiasms among the professor and students in the class which eventually improve students' and professor's motivation to learn and teach (Feldman, 2007).

Competency table. Given that the content is very complex, I believe that it is beneficial to produce a table of all things that students learn in the course.

Assessment rubrics. The assessment rubrics reflect both the content and disciplinary thinking. The rubrics function as an expectation and guidance for students' learning.

Based on the discussion in this section, I believe that that a well-developed course design will facilitate the deep learning and development of critical thinking in strategic management. I hypothesize:

H2: The design of the course improves students' critical thinking in strategic management.

Pedagogy

Pedagogy relates to the method and practice of teaching. Several key pedagogical components in this course are lecture, discussions, checklists and course review. Lecture is the tool to convey the rich amount of information in the course. The discussions are used to promote critical thinking. The checklists and course review attempt to facilitate and integrate learning.

Lecture. Lecture is defined as "continuous expositions by a speaker who wants the audience to learn something" (Bligh, 1998)(p.4). It is mainly used as a method to help students acquire information. Several

factors that influence the success of information acquisition and lecture are such as memory, attention and motivation. Thus, understanding the processes will improve the effectiveness of a lecture.

Bligh (1998) suggests that memory is a sequence of processes of encoding, storage and retrieval. Encoding related to the use of existing knowledge or memory to interpret new information. According to him, we give meaning to information by linking it to our network of concepts in our memory. However, encoding is a short term memory and it transforms information by associating, discriminating, chunking or coding (Di Vesta & Gray, 1972). In order to promote learning we need to understand how the storage process works. Storage relates to the establishing of the new knowledge. Previous researcher found that the structuring of short term memory into long term memory requires the retrieval of the new information in the first half hour of receiving it (Broadbent 1970). What we can do to promote the effectiveness of lecture is to start lecture with previous lecture summary. This is to help the encoding process. Lecture should also accompanied by discussion breaks which is to promote storage and long term memory by retrieval.

Effective acquisition requires a good organization of the course content, chapters, modules and individual lectures. The organization is the foundation of knowledge and long term memory where the information finally transformed into long term memory or knowledge structure. Thus, I summarize the learning materials of the course into five questions and a model. They show the logical organization of the subjects. Then chapters are not presented individually but are blended to reflect and support the questions and sequences in the model. Similarly, each lecture has its structured organization. It contains the objectives, contexts that link it to previous lecture and an outline of the lecture itself. At the end of lecture there is a summary of the lecture and shows how that lecture fits with previous lecture and the overall model. Overall, certain way of structuring promotes the acquisition, understanding and retention of the materials.

Attention promotes learning. One of the ways is to use examples and language that are familiar and meaningful to the students. Even silly and funny examples attract attention and are more memorable. Repetition also increases attention and memory. Indeed, repetition is important in teaching, because it always takes several repetitions to get the attention from the majority of the class.

Motivation is very important in learning. Previous research found that motivation is more important than intelligence and social status in undergraduate students' academic achievements (Beard, Levy, & Maddox, 1964; Swift, 1966). Several things that motivate students are the relevance of the subject, the degree of enthusiasm and care a professor has for the subject and students.

Discussion. If lecture is mainly used as a method to help students acquire information, discussions are effective in promoting thinking (Bligh, 1998). It is more effective because students are more attentive, active and thoughtful during discussions (Siegel, Siegel, Capretta, Jones, & Berkowitz, 1963). I believe that class discussions can be designed to model critical thinking. The discussions promote learning through self-regulated learning (Bransford et al., 1999) and multimodality (Kress, Jewitt, Opborn, & Tsatsarelis, 2006). Self-regulated learning means that learning takes place when a learner continuously reflects their learning by being conscious of their performance. Students need to know how well they are doing. Cross (1988) suggests that it is important to continuously provide feedback of learning outcomes. Discussion can serve as a mirror for the students' reflection and confirmation of learning.

Human beings cannot focus for a long time when they are inactive (Bligh, 1998). This suggest that learning is more effective when it involves different parts of senses and modes that allows students to listen, think, talk and write (Kress et al., 2006). According to them, we learn better when we are exposed to the same materials multiple times through different modes.

In conclusion, I believe that frequent and short discussions between lectures promote learning. The alternating lecture and discussion probably should happen every half an hour since the structuring of short term memory into long term memory requires the retrieval of the new information in the first half hour of receiving it (Broadbent, 1970).

Checklist. Students learn better by testing themselves than reviewing or preparing for tests (F. Dempster, 1997). Thus, a checklist is a tool to help they learn. Similarly, I develop a group case checklist.

Course Review. It is basically an attempt to put all efforts in the semester into a learning structure.

Based on the discussion in this section, I believe that that pedagogy will facilitate the deep learning and development of critical thinking in strategic management. I hypothesize:

H3: The pedagogy of the course mediates the relationship between the course content and students' critical thinking in strategic management.

Practices

Practices are media where students practice their learning. In this case, practices will allow students to train their learning in critical thinking in strategic management. There are several practices in this approach: group case assignment, individual test and group presentation.

Strategic plan/ take home test. Cross (1988) suggests that the gap between testing and teaching should be narrowed. I believe one of the ways to help students simultaneously learning (self-taught) and being tested is the take home test. Researchers have found that students learn more from testing (being tested or testing themselves) than reviewing the materials such as when they are preparing for tests. The reason is that testing requires more cognitive processing and retrieval practice (F. Dempster, 1997; F. N. Dempster, 1996). Furthermore, researchers found that active monitoring of learning promotes learning (Bransford et al., 1999). I believe that take home test is a good medium for students to test and perform active monitoring of learning. This take home test provokes learning.

Strategic management audit/ group case assignment. Similarly, group case assignment can also promote learning and critical thinking. The positive effects of testing and active monitoring on learning are even amplified in group assignment. Now a group of students help each other in active monitoring and testing.

Presentation. Presentations allow students to learn from each other. Students also tend to do their best when they are asked to present in class. It probably serves as a medium for them to show case and feel proud of their work. I also believe that emotions can promote learning. Presentations always entail sense of competition among students. It motivates and promotes learning. I found that sincerely praise the students when they do well will promote motivation and learning. Setting expectation is also crucial. I ask the best team to present first to set the bar for the class.

Based on the discussion in this section, I believe that practices facilitate the deep learning and development of critical thinking in strategic management. I hypothesize:

H4: The practices of the course mediate the relationship between the course content and students' critical thinking in strategic management.

DATA, ANALYSIS, AND RESULTS

The sample of this research consists of twenty two surveys from students who took a graduate strategic management course in spring 2015. The course applied the approach described. A survey was distributed to the students in the class on the last day of the semester. There were twenty two subjects present on that day. The variables in the instrument are (1) Overall the content of the course improves my critical thinking ability in strategic management, (2) Overall the course design improves my critical thinking ability in strategic management, (3) Overall the pedagogy improves my critical thinking ability in strategic management, (4) Overall the practices facilitate my learning of critical thinking in strategic management and (5) Overall taking this course improves my critical thinking ability in strategic management. The students were asked to fill the surveys using Likert scale of 1 to 5 where 5 is strongly agree, 3 is neutral and 1 is strongly disagree.

I use multiple regression technique to analyze the data. Table 1 shows the descriptive statistics. Table 2 shows that both content and course design are significant and positive predictors of critical thinking in strategic management. Thus, the data support both hypothesis 1 and 2.

I follow Barron and Kenny (1981) in testing the mediation hypotheses. I regress content on critical thinking in strategic management and found the relationship was .73 and significant. However, in the presence of pedagogy, the relationship strength between content and critical thinking is weaker compared to the direct effect (.73 vs. .48). This suggests partial mediation of pedagogy. Table 3 shows the mediation effect of pedagogy. The results support hypothesis 3.

Table 4 shows the mediation effect of practices. I regress content and practices on critical thinking and found the relationship between content and critical thinking was -.03 and non-significant. The direct relationship was .73 and significant. The results suggest the full mediation effect of practices on the relationship between content and critical thinking in strategic management.

TABLE 1
MEANS, STANDARD DEVIATION, AND CORRELATIONS OF ALL VARIABLES

Variables	Mea ns	s.d.	1	2	3	4	5
1. Content	4.57	.60	1				
2. Course Design	4.62	.67	.57	1			
3. Pedagogy	4.67	.58	.58	.69	1		
4. Practices	4.62	.59	.79	.88	.78	1	
5. Critical Thinking	4.67	.58	.73	.95	.70	.93	1

Note: All correlations are significant at the 0.01 level (2-tailed).

TABLE 2
RESULTS OF MULTIPLE REGRESSION MODEL PREDICTING CRITICAL THINKING IN STRATEGIC MANAGEMENT

Predictors	Predicted Sign	Beta
Content	+	.27**
Course Design	+	.80**
Multiple R		.98
R ²		.95
Adjusted R ²		.95

Note: ** p < .05

TABLE 3
RESULTS OF MEDIATION EFFECTS OF PEDAGOGY

Analysis	R	R ²	R ² Change	Beta
Analysis 1 Content on Critical Thinking	.73	.53		.73**
Analysis 2 Pedagogy on Content	.58	.37		.58**
Analysis 3 Step 1: Critical Thinking on Pedagogy	.70	.49		.42*
Step 2: Critical Thinking on Content	.80	.64	.15	.48**

Note: ** significant at the 0.01 level (2-tailed) and * significant at the 0.05 level (2-tailed).

TABLE 4
RESULTS OF MEDIATION EFFECTS OF PRACTICES

Analysis	R	R ²	R ² Change	Beta
Analysis 1 Content on Critical Thinking	.73	.53		.73**
Analysis 2 Practices on Content	.79	.63		.79**
Analysis 3 Step 1: Critical Thinking on Practices	.93	.87		.95**
Step 2: Critical Thinking on Content	.93	.87	.00	-.03

Note: ** significant at the 0.01 level (2-tailed).

DISCUSSION

The purpose of the paper is to propose and test a research-based approach to teaching critical thinking in strategic management. I hypothesize the importance of content, course design, pedagogy and practices. I hypothesize the direct effects of content and course design on critical thinking learning. I also hypothesize two process effects of pedagogy and practices.

The paper satisfies the criteria of good research such as originality and usefulness (Corley & Gioia, 2011; Whetten, 1989). This paper is original in the sense of its strategic management and holistic contexts. The holistic context and specific context of strategic management also make the study useful (Corley & Gioia, 2011). Its specific nature of strategic management extends current research into new context (Whetten, 1989).

Collectively the empirical data support the holistic approach. I learn that managing information, providing knowledge structure, sharing the course design with the students are essential for teaching and learning critical thinking. More important, the findings suggest that pedagogy and practices are the mechanisms that underlie the relationship between content and critical thinking. This means that content is transformed into critical thinking through pedagogy such as discussions and practices. This is especially true for practices which fully mediate the relationship between content and critical thinking.

Content and Critical Thinking

I hypothesize that the content of the course improves students' critical thinking in strategic management. Empirical data support this hypothesis. This suggests that content management and strategic knowledge are very important to facilitate students' improvement in critical thinking in strategic management. I define critical thinking in strategic management as the ability to create strategic decisions by implementing strategic knowledge in both the identifying, understanding, analyzing and synthesizing of the strategic situations and the exploration and evaluation of alternative views and solutions and their assumptions and implications. It seems that the empirical data suggest that the arrangement of the course content into inquiry questions, models, checklists and lecture power points are effective in building knowledge foundation for the students which ultimately helps them in their critical thinking process. Overall, this is consistent with previous research that suggests the importance of knowledge structure in learning (Bligh, 1998; Bransford et al., 1999; Grant, 2008; Nilson, 2010; Svinicki, 2004).

Course Design and Critical Thinking

The empirical data provides support for the hypothesis that course design facilitates learning critical thinking in strategic management. This suggests that sharing with students the outcomes and process to achieve the outcomes earlier in the semester are very important in promoting critical thinking. More specifically, this suggest that sharing with students the syllabus, goals, objectives, rubrics, outcome skills

and textbook are very important. Moreover, I discuss in the course design how the model, lecture, and class discussions and various other things are designed to model and infuse critical thinking in the course.

The empirical data might suggest that good course design can narrow the teaching and learning gap (Cross, 1988) by setting goals and expectations and creating enthusiasm (Feldman, 2007) to achieve the goals and expectation such as by promoting usefulness (Svinicki, 2004) through interesting and relevant textbook, optional articles and self-select cases; and promoting sense of competition through presentations and discussions in the class.

Pedagogy and Critical Thinking

The empirical data provides support for the hypothesis that pedagogy mediates the relationship between content and critical thinking in strategic management. This finding suggests that it is important to use various pedagogies to achieve the goal of teaching critical thinking. More specifically, I use two complementary styles where lecture is used to convey information and knowledge and the discussion is used to model and promote critical thinking. Collectively the two complementary styles promote learning through self-regulated learning (Bransford et al., 1999; Cross, 1988) and multimodality (Kress et al., 2006). The supporting data might also suggest that supplementing the two styles with learning checklist and course review are effective in promoting critical thinking.

Practices and Critical Thinking.

The empirical data provides support for the full mediation effect of practices on the relationship between content and critical thinking in strategic management. This gives support to previous researchers that contend that testing and teaching should be narrowed (Cross, 1988) and active monitoring promotes learning (Bransford et al., 1999). For example, take home test promotes active monitoring and ultimately learning by providing students with chance and time to be simultaneously learning and being tested. This is a very effective way of learning and especially in a complex and time consuming course like strategic management.

The data might also suggest the importance of group work in teaching and learning critical thinking. Theoretically, given the complex nature of the course and critical thinking, group collaboration will help students' critical thinking development. For example, group members might have complementary and contradictory views of the strategic issues or assumptions of alternatives. This difference will promote critical thinking development.

Lastly, presentations allow all students in the class to see and discuss more different views of the content and critical thinking process. Collectively, it is a powerful way to promote learning and critical thinking.

THEORETICAL IMPLICATION

The existing literature suggests the importance of various variables related to the teaching of critical thinking (Browne & Freeman, 2000; Tsui, 2002). However, a holistic approach to teaching critical thinking in a specific course such as strategic management does not exist. Thus, the theoretical contribution of the paper is its holistic and specific context of strategic management. Its integrated and specific nature of strategic management has improved our understanding of teaching critical thinking and extends current research into a new context (Whetten, 1989).

More specifically, the proposed approach is consistent with a definition of theory which is "statement of concepts and their relationships that shows how and/or why a phenomena occurs (Corley & Gioia, 2011) "within a set of boundary assumptions and constraints (Bacharach, 1989). Similarly, the proposed approach satisfy Whetten's (Whetten, 1989) statement that a theory describes (what, how, when, who, where) and explains. According to Whetten a good model must look for comprehensiveness and parsimony. In this paper, I have included all key variables in teaching critical thinking. This improves the comprehensiveness and parsimoniousness of the model. I discuss the importance of content and course

design. I also discuss two process variables of pedagogy and practices. This clearly explicates what and how the model works.

Furthermore, this paper extends the literature by extending into a new context of strategic management. This paper extend the general finding of critical thinking in a new and specific context of strategic management (Whetten, 1989). Whetten (1989) observed that “the Who, Where, and When of a theory are typically discovered through subsequent tests of the initial, rudimentary theoretical statement (What, How , Why)” (p.492). Overall, this paper helps our understanding of teaching critical thinking and especially in strategic management. This paper improves our understanding of teaching critical thinking by examining the what, how, why and where (Bacharach, 1989; Whetten, 1989).

MANAGERIAL IMPLICATION

I believe that this paper has the potential to improve current practice of teaching strategic management. The approach of this paper is both holistic and specific. It is holistic in the sense that the model includes all major variables related to teaching. This inclusion will help practice. Most professors will have the components of content, course design, pedagogy and practices in their teaching. This paper discusses the different impacts of the components on critical thinking. This data suggests that the content and course design facilitate critical thinking. However, the empirical evidence that support the mediation models suggests that pedagogy and practices are indeed the mechanisms that underlies and transform content into critical thinking.

The supporting empirical evidence suggest that professors teaching critical thinking in strategic management must be aware of and have the ability to design and manage content, course and processes such as classroom discussions and assignments. The integrated model and causal nature of the mediation effects (Baron & Kenny, 1986) suggest that professors teaching such courses must treat the variables in the model as a collective model. Professors must understand the whole process of transforming content into critical thinking. We know that it is facilitated by a course design and though the pedagogical choices and practices. Utilizing individual components of the model might not gain the optimum effectiveness.

Furthermore, the paper is built on real life experience. It has a lot of details. For example, I have developed ways to organize content thorough logical set of inquiry questions or dynamic model. I also have checklists that explicate the models and inquiry questions.

LIMITATION AND FUTURE RESEARCH

Like previous studies I use self-report critical thinking improvement (Tsui, 1999, 2002). Researchers in the future might want to develop and use more objective measures of critical thinking in strategic management. The measures are also single item measures. Given the complexity of the variables, future researchers might want to use multi item measures. The present paper has proposed various items for each construct in the model. However, due to the lack of large sample size it is not possible to analyze the data using other techniques such as structural equation modelling.

Future researchers might want to conduct research that test the model proposed above to the specific components of critical thinking such as analysis, synthesize, alternative views and assumptions etc. For example, future researchers can test if content models improve synthesis and alternative views?

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