

Assessing Student Critical Thinking Using Structured vs. Unstructured Case Analysis

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Introduction

Critical thinking is one of the learning goals noted in the accreditation standards of the Association to Advance Collegiate Schools of Business International (AACSB). As a learning goal, critical thinking is measured to demonstrate that program outcomes are meeting expectations established by the institution using a systematic process. The assessment or assurance of learning process affords a business school the opportunity to gather data in a standardized format, which is used to assess program outcomes. This paper examines the data recently collected in Strategic Management, a capstone course for MBA students used to assess student critical thinking and the role of case methodology in the demonstration of student learning and accomplishment of learning outcomes.

Strategic Management has three essential parts, the first of which is formulating a strategy. Strategy formulation consists of vision/mission statement assessment, the scanning of both the external and internal environments in which the organization operates and the generation of possible operating strategies that can be derived from that analysis. That section ends with a strategic choice in which a few—in fact usually one—of these strategies is selected for implementation using techniques that range from capital budgeting procedures to specific matrixes developed in the course. The second major section is strategy implementation covering historically successful implementation methods and problems likely to be encountered in implementation: organizational politics, resistance to change etc. The final section is strategy control and evaluation, which involves detailing methods to determine the success/failure of a given strategy and methods of successful intervention when deviations from the desired goals are detected.

In this case study, measurement of student attainment in the strategic management course usually covers the acquisition of specific course knowledge in external and internal environmental analysis, in business and corporate strategy formulation and in strategy implementation, control and restructuring. There are also specific course skills to be derived from following the 'strategic thinking process' (Edelman, 2005). This will include a clear definition of the situation facing the organization, defining the specific problem it faces, defining alternative solutions to those problems, choosing the best alternative and implementing the strategy chosen. In addition to the course content and skills from the case analysis process described above, students are expected to acquire additional perspectives which form part of the course objectives:

- active participation in interactive dialogue on case topics and case discussions
- demonstrating clear and logical writing skills to be seen in written class assignments and case analysis
- the free use of analytical tools and techniques developed in the course
- accurate and intensive use of financial analysis in developing arguments for or against specific strategies
- developing an implementation schedule and demonstrating proficiency in presentation skills including the use of power-point and other public speaking tools.

Prior to the case analysis, student performance is measured at critical points in the course. First, the use of topic specific short in-class assignments or take-home exercises (e.g., evaluating the mission statement of a case taken from the textbook, conducting external /internal audits of an organization again taken from one of the cases). Second, constructing, from the organizations presented in the cases, various matrices taught in the courses (i.e., Competitive Profile Matrix (CPM), External Factors Evaluation Matrix (EFE), Internal Factors Evaluation Matrix (IFE), Strengths-Weaknesses-Opportunities-Threats matrix (SWOT), Strategic Position and Action Evaluation matrix (SPACE), Boston Consulting Group matrix (BCG) etc.). Also, a team project requiring students to conduct an in-depth study of a chosen strategic management issue, such as, corporate mergers (e.g., Delta/Northwestern) and major corporate failures (e.g., Lehman Brothers).

Students were also introduced to theories of strategic decision making via the course material and then assigned an individual case analysis. The analysis of a case about business strategy is a valuable

assignment for both undergraduate and graduate business students. The assignment can serve multiple purposes: (1) it allows students to integrate knowledge from cross-functional disciplines; (2) students are required to understand and communicate different conceptual models; (3) students build confidence in learning about strategy theories; and (4) it fosters development of critical thinking skills. The following sections describe the relevant literature, the method for assessing critical thinking, followed by the results and conclusion.

Literature Review

Critical Thinking

There are many definitions of critical thinking. Riddell (2007) suggested that critical thinking cannot be simplified to a singular definition, recommending instead that it be described in terms of components and central features or characteristics. However, we define critical thinking as the ability to broaden and deepen one's thinking through systematic intellectual self-assessment, internal reflection and collaborative validation (Goldberg and Coufal, 2009). When students think critically they consider complex information from numerous sources and perspectives in order to make a reasonable judgment that they can explain and defend (Lodewyk, 2009). Manton (2008) suggested that it is most important to assess the student's ability to function at the higher-order levels (analyzing, evaluating and creating) of Bloom's (1956) taxonomy. However, the most effective way in which to measure critical thinking abilities remains open to debate (Goldberg and Coufal, 2009).

Recent literature shows that various assignments have been used across disciplines to analyze students' critical thinking performance within and beyond the classroom. In 2003, Born assigned students a real estate fundamentals project where students were required to make a decision regarding a property to purchase, review financing options, determine how to purchase the property, and when in the future, by virtue of savings and current income, he/she will become qualified to buy the property. The research suggested that the skills and perspectives required for critical thinking were emphasized in the semester-long project.

Hernandez (2009) noted that in the nursing literature, there is an emphasis on reflection as both an essential component of critical thinking and promoting the development of it. The author's research described an assignment to nursing students tasked with developing a nursing philosophical statement. Students were asked to articulate their beliefs, assumptions, and values related to each of the four metaparadigm concepts (i.e., nursing, person, environment, and health) and include an actual in-

depth example from their clinical practice for each of the metaparadigm concepts (Hernandez, 2009). The students were asked to compare and contrast their beliefs, assumptions, and values with those of nursing theorists. The activities involved in completing the assignment were representative of Brunt's (2005) definition of critical thinking as a process of purposeful thinking and reflective reasoning where practitioners examine ideas and assumptions, principles, conclusions, beliefs and actions in the context of nursing practice.

The White et al. (2009) study of biology students using interrupted case studies (where student groups work through one section of the case, then share findings and questions with the class and instructor before moving on to the next section) was constructed to determine to what extent case studies could improve critical thinking skills with regard to evaluation of evidence in scientific contexts. The research results showed that a small but statistically significant increase in the number of students capable of critically evaluating selection aspects of experimental design.

While the previous selected studies have focused on assessment within the classroom, other assessments of critical thinking measured learning beyond the classroom. Perkins and Murphy (2006) provided a model of critical thinking that could be used efficiently and easily to derive individual profiles of engagement in critical thinking in the context of an online discussion. Engagement in critical thinking was based on four indicators: clarification; assessment; inference; and strategies. The results of the application of the model showed that it could be used to obtain insight into the critical thinking processes used by participants in an online asynchronous discussion.

Goldberg and Coufal (2009) conducted a study in which the critical thinking abilities of a group of 4th and 5th year university students were measured before and after 12 weeks of community-based experiences. The research used the Watson-Glaser instrument to assess the participants' weekly journal entries that responded to specific questions. Students submitted the weekly journals online through a discussion board. Results showed that there was a significant difference between the two groups, with the 5th year students better able to think critically, particularly in deducing conclusions and evaluating arguments. According to Bruning, Shaw and Ronning (1995), proficient critical thinking can be learned and is not dependent on (high) intellectual ability.

Case Study Methodology

The case study methodology provides an opportunity to simulate a situation that students might one day face as organizational professionals (Andrews & Noel, 1986; Herreid, 1994; Stonham, 1995). Case studies have the advantage of going beyond rote memorization of theories and concepts to challenge students to put themselves in the positions of the characters and consider the implications of making a decision (Andrews & Noel, 1986; Gragg, 1951; Harrison-Walker, 2000; Herreid, 1994; Sansalone, 1990). Given that there are usually several possible answers, case analysis aids students in moving beyond looking “the right” answer to assessing all possible responses based on some established criteria (Sansalone, 1990).

At the same time, case studies are not able to replicate the complete experience of making a decision in terms of the real-time surge or intricacy of emotions, thoughts, and peer or supervisory pressure (Andrews & Noel, 1986; Mitnick, 2009). In addition, case analyses sometimes provide more information to students than they would realistically have in actual organizational situations (Gloeckler, 2008). While there are advantages and disadvantages to utilizing case analyses to assess critical thinking, the benefits outweigh the disadvantages.

The Revised Bloom’s Taxonomy was used to prepare and assess the case analysis and yield greater results in the area of student-centered learning (Anderson & Krathwohl, 2001). The six (6) cognitive domains in the Revised Bloom’s Taxonomy from lower order thinking to higher order thinking are: Remembering, Understanding, Applying, Analyzing, Evaluating, and Creating (Anderson & Krathwohl, 2001). The lower two cognitive domains, Remembering and Understanding, focus on student retaining information and being able to display a basic understanding. With the higher order domains, Applying, Analyzing, Evaluating, and Creating, students are expected to demonstrate that they can utilize the information gained at the lower level domains in various capacities. That is, they can apply the information and use their critical thinking skills to apply the information in different scenarios.

Structured vs. Unstructured Case Analysis

To engage students in the topic of interest, it is important to provide contexts that reflect the challenges that they might face in their current or future workplaces. Doing so, provides them with practice in a given task (e.g., critical thinking) especially when the situations are ambiguous (Herreid, 1994; Stonham, 1995). The case study methodology provides one pathway to simulate a situation that students might one day face as organizational professionals (Andrews & Noel, 1986; Herreid, 1994; Stonham, 1995).

Case studies have the advantage of going beyond memorization and regurgitation of content by having students focus on realistic organizational situations, asking them to put themselves in the positions of the characters, and having them consider the implications of making a decision on that person, other people, society and the organization (Andrews & Noel, 1986; Gragg, 1951; Harrison-Walker, 2000; Herreid, 1994; Sansalone, 1990). Given that there are usually several possible answers to any case, they encourage students to move beyond finding “the right” answer, and consider that there is rarely only one possible response to any given organizational situation (Sansalone, 1990).

At the same time, no case study can replicate the complete experience of making an organizational decision in terms of the real-time surge or intricacy of emotions, thoughts, and peer or supervisory pressure (Andrews & Noel, 1986; Mitnick, 2009). In addition, cases can sometimes provide more information to students than they would realistically have in actual organizational situations (Gloeckler, 2008). As it relates to validity and reliability, the generalizability of case studies is low due to the fact that most cases are based on a single or a few situations, person(s) and/or organizations (Riege, 2003). While there are advantages and disadvantages to utilizing cases, the benefits outweigh the disadvantages when daring students to care about demonstrating their ethical understanding.

There are various methods that can be used to deploy the written case analysis. This paper focuses on the differences between the structured case analysis approach and the unstructured approach. The structured case analysis method provides the students with detailed directions to guide them through the analysis of the case. On the other hand, in the unstructured case analysis method the students are given a framework for conducting the analysis. Previous research shows that students who were taken through a progressive learning process, moving from structured to unstructured case analysis were successful in traditional (unstructured) case analysis approach (Klebba & Hamilton, 2007). This research hypothesizes that the students provided with the detailed guideline will have higher scores on the critical thinking rubric than those who were provided the framework.

Methodology

The critical thinking learning goal was assessed via a business case assignment (i.e., a course-embedded measure) in the Strategic Management capstone graduate course. Students were asked to complete a comprehensive case study. The cases were assigned from the textbook used in the course (David, 2008). There were two professors teaching this course during the semester in which this assessment took place. One professor provided students with a detailed guide for completing the case, while the other professor provided students with a brief framework of the components of the case analysis.

The detail guide (structured) consisted of specific components that should be analyzed and discussed in the case analysis. The components included in the guide are: 1) Initiating and agreeing on a strategic planning process; 2) History/Evolution of the Organization; 3) Identify formal aspects of the organization; 4) Identify informal aspects & culture of the organization; 5) Vision, mission and values statements analyses; assessing external environment; 6) Assessing internal environment; 7) Identifying the strategic issues facing the organization; 8) Identifying the strategic issues facing the organization; and 9) identifying the strategic issues facing the organization.

The brief framework (unstructured) for completing the case analysis contained specific guidelines to aid in the analysis. The guidelines to the students are to provide: 1) an evaluation of the mission statement with a requirement that a new/better statement be prepared if current one is inadequate, 2) a scanning of the external and internal environments detailing the opportunities and threats as well as strengths and weaknesses, 3) the generation of possible operating strategies based on the environmental scanning. Students are required to select and justify a technique for this exercise, 4) the selection of one strategy for implementation. Students were asked to explain and justify the tool/technique used, and 5) a discussion of the implementation of that strategy stating the problems likely to be encountered and how they will be addressed.

For the purpose of this research, we assessed a random sample of the case analyses from both professors using a grading rubric (see Figure 1). Describe methodology used for grading

Results

There were significant differences in overall critical thinking abilities between the two groups (Table 1); the 'Structured' group had higher overall critical thinking scores (3.2) compared to the scores of the 'Unstructured' group (2.2). Student scores differed significantly between subgroups of Bloom's taxonomy as well. At the lower orders, the 'Structured' group scores were significantly higher than the 'Unstructured' group, particularly for 'understanding'. The 'Structured' group scored 3.7 compared to 2.5 for the 'Unstructured' group on 'understanding'. At the higher orders, the 'Structured' group continued to score significantly higher than the 'unstructured' group. The 'Structured' group scored 3.1 compared to 1.8 for the 'Unstructured' group. The greatest difference between the two groups is in 'analyzing'. The 'Structured' versus 'Unstructured' mean group scores were 2 and 3.3, respectively.

The two groups, however, differed in patterns of their responses across the five critical thinking subtests. Neither group showed progressive scores at higher orders of Bloom's taxonomy. 'Unstructured' scores were higher at lower levels of the taxonomy, and declined as the order level increased, with one exception. 'Unstructured' scores on creating, the highest order of Bloom's taxonomy, were higher than scores on evaluating. 'Structured' scores dropped sharply for the applying criteria.

Conclusions and Future Research

The intent of this study was to determine whether structured case methodology had an effect on students' critical thinking abilities on an assigned case study. To examine this intent, the critical thinking abilities of students enrolled in the capstone course were compared across two sections of the course. The differentiating factor for the two groups was the type of instruction given. Results suggest that detailed (structured) guidelines on case analysis assignments may result in greater critical thinking performance of students compared to students receiving a framework (unstructured) on the same assignment. Future research will include collecting more data, to support or refute the conclusions. Also, future assessment results can be assessed by more than one faculty member to improve inter-rater reliability. In addition, other factors related to the students and the faculty members should also be controlled for in future research to determine if the difference among groups is statistically significant.

References

- Anderson, L.W., & Krathwohl, D.R. (Eds.) 2001. *A taxonomy for learning, teaching and assessing: A revision of Bloom's Taxonomy of educational objectives: Complete edition*. New York: Longman.
- Andrews, E. S., & Noel, J. L., 1986. "Adding life to the case-study method", *Training and Development Journal*, Vol. 40, No. (2), 28-29.
- Born, W.L., 2003. "A real estate fundamentals project to enhance learning", *Journal of Real Estate Practice and Education*, Vol. 6, No. 2, 239-255.
- Bruning, R.H., G.J. Shaw and R.R. Ronning, 1995. *Cognitive Psychology and Instruction*, 2nd ed. New Jersey: Merrill/Prentice Hall.
- Brunt, B.A., 2005. "Models, measurement and strategies in developing critical-thinking skills", *The Journal of Continuing Education in Nursing*, Vol. 36, 255-262.
- David, Fred R., 2009. *Strategic Management: Concepts and Cases*, 12th edition. New Jersey: Prentis Hall, 2009.
- Goldberg, L.R. and K.L. Coufal, 2009. "Reflections on service-learning, critical thinking, and cultural competence", *Journal of College Teaching & Learning*, Vol. 6, No. 6, 39-45.
- Hernandez, C.A., 2009. "Student Articulation of a Nursing Philosophical Statement: An assignment to enhance critical thinking skills and promote learning", *Educational Innovations*, Vol. 48, No. 6, 343-349.
- Herreid, C. F., 1994. "Case studies in science-A novel method of science education", *Journal of College Science Teaching*, Vol. 23: 221-229.
- Klebba, J.M. and Hamilton, J.G., 2007. "Structured Case Analysis: Developing Critical Thinking Skills in a Marketing Case Course", *Journal of Marketing Education*, Vol. 29, 132-139.
- Lodewyk, K.R., 2009. "Fostering Critical thinking in physical education students", *Journal of Physical Education, Recreation & Dance*, Vol. 80, No. 8, 12-18.
- Manton, E.J, D.E. English, C.R. Kernek, 2008. "Evaluating Knowledge and Critical Thinking in international marketing courses" *College Student Journal*, Vol. 42, No. 4, 1037-1044.
- Perkins, C., E. Murphy, 2006. "Identifying and measuring individual engagement in critical thinking in online discussions: an exploratory case study" *Educational Technology & Society*, Vol. 9, No. 1, 298-307.
- Sansalone, M., 1990. Teaching structural concepts through case studies and competitions. *Engineering Education*, vol. 80, No. 4, 472-475.

Stonham, P., 1995. For and against the case method. *European Management Journal*, Vol. 13, No.2, 230-232.

White, T.K., P. Whitaker, T. Gonya, R. Hein, D. Kroening, K. Lee, L. Lee, A. Lukowiak, and E. Hayes, 2009. "The use of interrupted case studies to enhance critical thinking skills in biology" *Journal of Microbiology & Biology Education*, Vol. 10, 25-31.

Table 1. Single factor ANOVAs for both Structured and Unstructured Strategic Management case study analysis ($p < .05$)

Subtest	df	Mean Square	F	Level of Significance
Group				
Remembering	1	4.60	9.78	0.0039
Error	30	0.47		
Understanding	1	11.10	16.98	0.0003
Error	30	0.65		
Applying	1	9.08	14.48	0.0006
Error	30	0.63		
Analyzing	1	11.72	19.26	0.0001
Error	30	0.61		
Evaluating	1	13.33	13.04	0.0011
Error	30	1.02		
Creating	1	5.00	5.23	0.0295
Error	30	0.96		
Total	1	7.92	16.06	0.0004
Error	30	0.49		

Figure 1: Critical Thinking Rubric

Criteria	4	3	2	1	0
<p>(1) Remembering The recall of previously learned material, of specific facts, or of complete theories. Weighted 10%</p>	<p>A. Recalls all relevant facts. B. Recognizes the information presented in a question and can remember answers that address the query. C. Can define accurately all discipline-specific terms.</p>	<p>A. Recalls most relevant facts, but fails to recall some facts that are critical to the argument. B. Recognizes most of the information presented in question format and can remember most answers that address the query. C. Can define with some accuracy most discipline-specific terms.</p>	<p>A. Recalls some relevant facts, but fails to recall significant facts that are critical to the argument. B. Recognizes some of the information presented in question format and can remember some answers that address the query. C. Can define some of the discipline-specific terms.</p>	<p>A. Recalls a few relevant facts, but fails to recall most facts that are critical to the argument. B. Recognizes the information being queried. C. Can define a few of the discipline-specific terms.</p>	<p>A. Does not recall relevant facts and fails to recall facts that are critical to the argument. B. Does not recognize the information being queried and can not remember facts. C. Can not define discipline-specific terms.</p>
<p>(2) Understanding An awareness of what the material means; allows one to demonstrate understanding of work based on one's knowledge of it. Weighted 10%</p>	<p>A. Can identify all the main ideas in written essays, reports, case studies or problems. B. Always recognizes relevant facts and uses them in proper context. C. Always accurately expresses in his/her own words all the key points of the presented content.</p>	<p>A. Can identify most of the main ideas in written essays, reports, case studies or problems. B. Most often recognizes relevant facts and usually uses them in proper context. C. Most often expresses in his/her own words most of the key points of the presented content.</p>	<p>A. Can identify some of the main ideas in written essays, reports, case studies or problems. B. At times recognizes relevant facts and at times uses them in proper context. C. At times expresses in his/her own words some of the key points of the presented content.</p>	<p>A. Can identify a few main ideas in written essays, reports, case studies or problems. B. Rarely recognizes relevant facts and rarely uses them in proper context. C. Rarely expresses in his/her own words key points from the presented content.</p>	<p>A. Can not identify any of the main ideas in written essays, reports, case studies or problem. B. Never selects relevant facts. C. Does not express in his/her own words the key points of the presented content.</p>
<p>(3) Applying Using data, principles, and theories learned to answer a question in a new environment; shows one can apply what is learned and understood. Weighted 25%</p>	<p>A. Consistently and accurately manipulates all relevant learned content to create new information, a new product or make an argument. B. Always performs comprehensive tasks specific to learned course knowledge. C. Employs all learned formulas, procedures, principles or themes accurately and appropriately in new contexts.</p>	<p>A. Consistently and accurately manipulates some of the learned content to create new information, a new product or make an argument. B. Usually performs comprehensive tasks specific to learned course knowledge. C. Employs most learned formulas, procedures, principles or themes accurately and appropriately in new contexts.</p>	<p>A. Correctly manipulates some of the learned content to create new information, a new product or make an argument. B. At times performs comprehensive tasks specific to learned course knowledge. C. Employs a few learned formulas, procedures, principles, or themes but not always appropriately in new contexts.</p>	<p>A. Rarely manipulates any of the learned content to create new information, a new product or make an argument. B. Rarely performs comprehensive tasks specific to learned course knowledge. C. Employs very few formulas, procedures, principles, or themes and not always appropriately in new contexts.</p>	<p>A. Never manipulates any of the learned content to create new information, a new product or make an argument. B. Never performs comprehensive tasks specific to learned course knowledge. C. Does not employ formulas, procedures, principles, or themes accurately and appropriately in new contexts.</p>

<p>(4) Analyzing Breaks down material into its constituent parts so that its organizational structure may be understood. Weighted 25%</p>	<p>A. Performs advanced analytical tasks such as interpretation of graphs, tables and/or the validity of arguments or reasoning. B. Consistently classifies all information, concepts, principles and facts. C. Consistently compares and contrasts all facts presented.</p>	<p>A. Performs intermediate analytical tasks such as predicting outcomes or analyzing logic structure. B. Usually classifies most information, concepts, principles and facts. C. Usually compares and contrasts most facts.</p>	<p>A. Performs basic analytical tasks such as categorizing information and distinguishing between relevant and irrelevant data or facts. B. Infrequently classifies information, concepts, principles and facts. C. Infrequently compares and contrasts facts.</p>	<p>A. Attempts to perform basic analytical tasks. B. Rarely classifies information, concepts, principles and facts. C. Rarely compares and contrasts facts.</p>	<p>A. Does not perform basic analytical tasks. B. Never classifies information, concepts, principles and facts. C. Never compares and contrasts facts.</p>
	<p>A. Assesses unsupported claims using standards of credibility and documentation. B. Neutralizes fallacious reasoning and rhetoric by drawing attention to its flaws. C. Persuasively and correctly judges an argument's completeness and validity.</p>	<p>A. Assesses unsupported claims but does not make clear which standards are used in that assessment. B. Neutralizes most fallacious reasoning and rhetoric by drawing attention to its flaws. C. Correctly judges an argument's completeness and validity.</p>	<p>A. Attempts to assess unsupported claims. B. Recognizes some fallacious reasoning and rhetoric and neutralizes some of it. C. Somewhat correctly judges an argument's completeness and validity but with missing facts or claims.</p>	<p>A. Identifies unsupported claims but does not assess them. B. Recognizes some fallacious reasoning and rhetoric but is not able to neutralize it. C. Attempts to judge an argument's completeness and validity but with many missing claims and/or facts.</p>	<p>A. Does not identify unsupported claims or assess them. B. Does not recognize fallacious reasoning and rhetoric. C. Fails to judge an argument's completeness and/or validity.</p>
<p>(5) Evaluating Making judgements based on criteria through verifying and critiquing. Weighted 20%</p>	<p>A. Combines content from many disciplines to develop solutions to unrelated problems and/or to create valid arguments. B. Derives tentative explanations by utilizing deductive and/or inductive reasoning skills. C. Draws all possible conclusions, insightfully that account for contradictory evidence, facts, and ideas.</p>	<p>A. Combines some content from multiple disciplines to develop solutions to unrelated problems and/or to create somewhat valid arguments. B. Derives tentative explanations by utilizing deductive and/or inductive reasoning skills. C. Draws most conclusions based on evidence, facts and ideas but ignores opposing evidence.</p>	<p>A. Occasionally combines a limited amount of content from a few disciplines to develop solutions or make an argument. B. At times derives tentative explanations by only utilizing inductive reasoning skills. C. Draws some but not all conclusions after weighing evidence, facts and ideas.</p>	<p>A. Infrequently combines a limited amount of content from a few disciplines but does not effectively develop solutions to unrelated problems or create valid arguments. B. Rarely derives tentative explanations. C. Draws conclusions but they are not based on evidence, facts and ideas.</p>	<p>A. Does not effectively develop solutions or create valid arguments. B. Can not derive tentative explanations. C. Does not present conclusions.</p>
<p>(6) Creating Shows ability to judge the value of material for a given purpose based on defined criteria and rationale; includes decision making and selection. Weighted 10%</p>					

Average Rating Accomplished 3.40-4.00 Competent 3.00-3.39 Developing 2.69-2.99 Beginning 2.40-2.68 Remedial 0-2.39

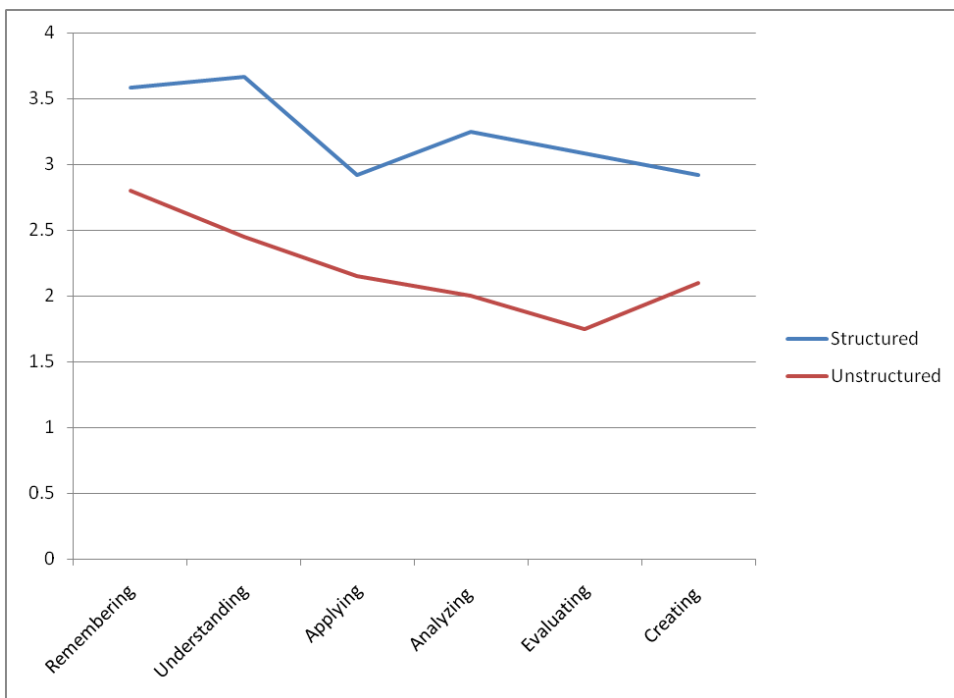


Figure 2. Critical thinking abilities of students in Strategic Management course receiving Structured (n=20) and Unstructured (n=12) directions on case analysis (maximum score per subtest = 4)