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A Strategy for Teaching Critical Thinking: The Sellmore Case

By Joseph Castellano, Ph.D.; Susan Lightle, Ph.D.; and Bud Baker, Ph.D.

EXECUTIVE SUMMARY

Critical thinking is one of the most important skills business students need to acquire so they can provide value to their employers. The authors have developed a valuable way to teach them.

The importance of teaching and applying critical thinking skills is apparently matched by its difficulty in doing so. Sara Rimer, writing for the January 18, 2011, edition of *The Hechinger Report*, discussed a study by Richard Arum that followed several thousand undergraduates from when they entered college in fall 2005 to when they graduated in spring 2009. Arum's research, published in his book *Academically Adrift: Limited Learning on College Campuses*, found that large numbers of students did not learn critical thinking, complex reasoning, and written communication skills. Arum used testing data and student surveys from 24 colleges and universities ranging from the highly selective to the least selective.¹ The study found that after the first two years of college, 45% of students made no significant improvement in their critical thinking, reasoning, or writing skills. After four years, 36% showed no significant gains in what Arum called the "higher order" thinking skills.² The good news is that students majoring in the liberal arts showed significantly greater gains over time than other students in critical thinking, reasoning, and writing skills. The bad news is that students majoring in business, education, social work, and communication showed the least number of gains in learning.³

Paul Hurd, in the article "The State of Critical Thinking Today," written for The Critical Thinking Community web-

site (www.criticalthinking.org), examined the current state of critical thinking in higher education. Citing numerous studies, Hurd pointed out that while the overwhelming majority of faculty understand the importance of developing critical thinking skills in their students and believe it is the primary objective of their instructional methodology, a majority of faculty lacks a substantive concept of critical thinking. He says that, given this lack of understanding, it is difficult to make the case that critical thinking is the norm in the design of most instructional methodologies. For Hurd, an understanding of critical thinking at the level he is proposing requires that we “teach content through thinking, not content, and then thinking.”⁴

While the development of critical thinking skills is important for any discipline, it must be a vital component in how we prepare students for entry into the accounting profession. For example, management accountants are often called on to identify problems, gather relevant information in assessing those problems, and explore and interpret information in developing alternative strategies for solving these problems. In this capacity, the management accountant is expected to formulate questions, highlight and identify relevant assumptions, and challenge those assumptions, all with a view toward developing and articulating alternative strategies aimed at resolving these problems. Management accountants are also called on to construct and defend arguments by using and evaluating evidence either in favor of or in opposition to proposals that require managerial decisions. All of the above tasks are important components that must be developed through an understanding and application of critical thinking skills.

WHAT IS CRITICAL THINKING?

Numerous and varied definitions of critical thinking have been proposed. Michael Scriven and Richard Paul suggest the following definition.

Critical thinking is the intellectually disciplined process of 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. In

its exemplary form, it is based on universal intellectual values that transcend subject matter divisions: clarity, accuracy, precision, consistency, relevance, sound evidence, good reasons, depth, breadth, and fairness.⁵

The Critical Thinking Community website defines critical thinking as:

“that mode of thinking about any subject, content, or problem in which the thinker improves the quality of his or her thinking by skillfully analyzing, assessing, and reconstructing it. Critical thinking is self-directed, self-disciplined, self-monitored, and self-corrective thinking. It presupposes assent to rigorous standards of excellence and mindful command of their use. It entails effective communication and problem-solving abilities, as well as a commitment to overcome our native egocentrism and sociocentrism.”⁶

Hurd offers a more succinct definition of critical thinking: “the art of thinking about thinking with a view to improving it.”⁷

These definitions describe critical thinking as a disciplined process *that can be improved*. The challenge to teachers is how to help students improve their ability to think critically. Lisa Snyder and Mark Snyder suggest that critical thinking skills can be taught in the business curriculum by using instructional strategies that actively engage students in the learning process, rather than relying on lecture and rote memorization, and by focusing instruction on the process of learning rather than solely on the content.⁸ The hoped-for outcome of using these instructional strategies will be students who demonstrate the characteristics of a well-cultivated critical thinker by doing the following:

- Formulate important questions and issues.
- Gather and assess relevant information.
- Develop reasoned conclusions and solutions, and test them against relevant criteria and standards.
- Think open-mindedly by assessing their assumptions and the implications and consequences of their decisions.

- Communicate effectively with others in developing solutions to complex problems.⁹

WHY DID WE WRITE THIS ARTICLE?

Regardless of one's definition of critical thinking, the connections to learning are obvious. For all business students, the ability to think critically is an essential component in their ability to reason effectively, assess information, question assumptions, identify key concepts, ask the right questions, and make informed decisions. Certainly, all these components are essential in preparing business students, regardless of major, to become 21st Century business professionals.

The combined teaching experience of the three authors numbers more than 80 years, representing both the accounting and management disciplines. We imagined our experience was like most of the faculty described in the Hurd article. We focused our efforts on problem-solving methodologies and case studies, and, if asked, would have responded that we not only knew what critical thinking was but also that we were teaching it to our students as a core instructional competency. Not until we began to develop some of our own instructional cases did we begin to understand how very limited and superficial student analyses really were. Up until this time, we had been using case material and problems that contained a number of prompts or focused problems so narrowly that it was difficult to really test the critical thinking skills of our students. Our experience led us to research and study the critical thinking literature more thoroughly, especially The Critical Thinking Community website and the work of Stephen Brookfield. While the experience has been challenging, it also has been rewarding. We are now introducing and blending critical thinking into our courses, and, as a result, believe that we are making some progress in improving our students' ability to think critically and become better problem solvers.

In an article in *Inquiry: Critical Thinking across the Disciplines*, we outlined what we believe to be the biggest impediments to teaching critical thinking skills and introduced a methodology for overcoming those impediments.¹⁰ The purpose of this article is to demonstrate the application of that methodology to an instructional case we have used in a management accounting

class. In addition to the case (see Appendix A), we also provide extensive teaching notes (see Appendix B). We hope that by sharing our approach and experiences, others will be encouraged to take up the challenge, not only of learning more about what critical thinking is but also how to effectively introduce this important learning experience into their classrooms.

Our instructional methodology is based on Brookfield's model of critical thinking, which defines the following four components of the critical thinking process:

(1) Hunting Assumptions. Critical thinking requires examining the assumptions that influence the way we think and act. Some assumptions—Brookfield calls them causal assumptions—are obvious and readily apparent. Others, what he calls paradigmatic assumptions, are not so obvious and are the most difficult to uncover and change. These assumptions can only be surfaced through some structured reasoning process and through discovering contrary evidence.¹¹

(2) Checking Assumptions. Once assumptions have been brought to the surface, Brookfield highlights the importance of their examination. This "checking" process asks that we begin to consider whether our assumptions are as accurate as we think they are. The process of appraisal calls for a healthy dose of skepticism about our assumptions to see if they make sense and to identify when they do not. In this important step, critical thinkers search for the accuracy and validity of their assumptions by questioning the source of "facts."¹²

(3) Seeing Things from Different Viewpoints. Brookfield believes that one of the best ways to decide whether an assumption is accurate or makes sense is to try and see the assumptions we are making from different points of view. In a business setting, problems and issues usually are presented from management's viewpoint. Yet applying this step in Brookfield's critical thinking model sees management as just one of many stakeholders in any complex decision. What does the situation look like from the customer's viewpoint? How will workers react to a proposed change or problem resolution? How are other stakeholders likely to respond?¹³

(4) Taking Informed Action. The end result of the critical thinking process is to take some informed action. In Brookfield's view, informed action is based on thought

and analysis that has incorporated his first three points. The action taken must be supported by convincing evidence. Brookfield, though, cautions that to act based on evidence is no guarantee that critical thinking has occurred. We also need to know that our actions are resulting in what we intended. In other words, what we thought would occur has in fact happened.¹⁴

Scenario analysis is one protocol used in critical thinking. Yet our approach differs in several important ways from the method/protocol demonstrated by Brookfield.¹⁵ First, students are not initially given any prompts in the form of specific questions, suggestions, or hints to get them started on their analysis. As indicated earlier, we began to develop our own materials because too many of the cases and problems that we were using contained either too many prompts/hints or did not lend themselves to complete application of Brookfield's model. Second, in order to apply the critical thinking process, cases must be designed to challenge students to not only apply a selected critical thinking model but also to see why a more robust solution to a complex problem is the outcome of such a process. In this way, the case can be used to demonstrate what can happen when an organization tries to deal with a complex problem without applying a critical thinking process.

THE SELLMORE CASE

We developed the Sellmore case and teaching notes to demonstrate the application of the Brookfield Critical Thinking Model. The case is brief but deceptively deep and complex. A company is faced with the inability of its sales force to develop new business. The level of "cold calling" and new business prospecting has declined significantly in the past 24 months. At present, the average salesperson earns about 70% of his or her compensation through base pay and 30% through commissions. A commission of 2.5% is currently earned on all sales. Tom Driver, Sellmore's sales manager, is convinced that major changes need to be made in the compensation and evaluation system in order to motivate the sales force to generate new business. Leo Sellmore, Sellmore's president, receives Driver's proposal and approves the changes. Nine months after the new plan is implemented, however, serious problems are occur-

ring. Students are asked to identify what has gone wrong.

What is readily apparent from the Sellmore case is that it has both multidimensional and interdisciplinary applications and implications. For example, it can be used as a performance measurement case in an accounting class, a sales staff evaluation case in a human resources class, and a strategy case in a marketing or a management class. We believe that good critical thinking scenarios should embody these multifunctional features in order to replicate real-world conditions and to test students' abilities to apply their critical thinking skills. Finally, the teaching notes we developed for the case provide instructions about how we use the case and a detailed analysis showing how to apply Brookfield's model.

CREATING A WIN-WIN

Developing critical thinking skills is a learned behavior and one that must be practiced. While there is general agreement about the importance of critical thinking as an attribute of any course, defining critical thinking, selecting an appropriate critical thinking model, and designing strategies to incorporate critical thinking into the design of course content present a host of challenges. This has clearly been our experience when it comes to teaching critical thinking. Once we developed an understanding of the basic attributes of critical thinking and agreed upon a model that could be taught to our students, we had to overcome the challenge of finding suitable cases and problems that would allow us to model and demonstrate this behavior for our students. What we have demonstrated in this article is one such example. By developing our own scenarios, we have been able to illustrate how the application of a critical thinking model, i.e., the Brookfield model in our case, can facilitate for students a self-assessment of their critical thinking skills and for faculty a viable means of designing instructional pedagogies that incorporate the important attributes of critical thinking. We hope that the approach and methodology we have demonstrated in this article will encourage you to begin a similar process. We believe this is the win-win we all seek as educators.

APPENDIX A: THE SELLMORE COMPANY

The Sellmore Company had become increasingly concerned about the inability of its sales force to generate sales from new business. The sales force of 30 is currently assigned to three regions in the Midwest, Northeast, and South. Each region has 10 sales representatives assigned. Each representative works off of a compensation system that is a combination of salary plus commission. At present, the sales commission is 2.5% of all sales. The average salesperson's compensation package is currently made up of roughly 70% in base pay and 30% in commissions.

The company began to notice a significant drop in the level of cold calling and new business prospecting in the past 24 months. An analysis of commissions earned during this period of time revealed that 80% were from existing business. Tom Driver, Sellmore's sales manager, also noted that, in any given day, more sales representatives were in the office than out in the field. Driver was convinced that major changes to the compensation and evaluation system were needed in order to motivate the sales force and to generate new business.

Driver developed the following proposal, which was approved by Leo Sellmore, the company's president:

1. The commission system would be changed as follows:
 - A commission of 4% will be paid on all new sales. This rate would be in effect for a two-year period from the date of the first sale in order to encourage the sales force to "mine" additional

new business from each new customer.

- The 2.5% commission for existing business will be reduced to 2%.
 - Base salaries no longer will be increased for merit raises based upon the annual performance review. Instead, a "bonus system" will be used to compensate those who meet their sales quotas. These bonuses will be given annually but not built into the base pay.
2. Each salesperson will be assigned a targeted sales quota for both new and existing business.
 3. At the end of each year, each salesperson will be evaluated and ranked based upon his or her level of sales to both new and existing customers.
 4. Each salesperson will be required to make a minimum of 15 cold calls per month.

Nine months after the new plan was implemented, a 10% increase in new sales had occurred, but sales to existing customers were down more than 20%. Worse yet, customer satisfaction scores had declined from 95% to 80%, and complaints about poor customer service were increasing at an alarming rate. Morale among the sales force seemed to be at an all-time low, especially among the more senior sales representatives. In fact, three of Sellmore's most experienced sales reps resigned.

Needless to say, Leo Sellmore is both extremely concerned about the deteriorating situation and equally perplexed about what went wrong with the new compensation and evaluation system for the sales force.

APPENDIX B: TEACHING NOTES

We developed teaching notes for the Sellmore case to illustrate the critical thinking process as outlined by Stephen Brookfield in his book *Teaching for Critical Thinking*. Brookfield's methodology, as described earlier in this article, permits the instructor to highlight for students the failure on the part of Sellmore's management to apply the basic elements of critical thinking prior to making the decision to implement a new compensation and evaluation system for the sales force. Brookfield's process is also "student-friendly" in that it is easy to replicate in a variety of other unstructured problem-solving situations. As such, it presents the instructor with a template to use in other situations involving the need for critical thinking. Two such examples are assessing decisions already made to see where the critical thinking process may have led to a better decision or giving students a set of facts involving the need for a decision and then asking them to apply Brookfield's methodology for arriving at a decision.

Brookfield's critical thinking process begins with what he calls "hunting for assumptions."¹⁶ This step involves surfacing and examining the assumptions that are influencing the way we think and are proposing to act. Uncovering these assumptions—whether explicit or implicit—is extremely important in the decision-making process, especially in an organizational context. Assumptions often drive the organizational structures we put in place—policies, procedures, and practices—which in turn affect organizational behaviors. Behaviors on the part of employees then drive the results that occur.

Once we have surfaced our assumptions, the next step in the critical thinking process is checking those assumptions to see whether they are as accurate as we think they are.¹⁷ In effect, we are engaged in a process of appraisal to determine when our assumptions make sense and when they do not. What we are attempting to do in this step of Brookfield's process is find convincing evidence that validates our assumptions.

The third step in his critical thinking process involves what he calls "seeing things from different viewpoints."¹⁸ Here we are trying to view our assumptions and proposed actions from different points of

view. In the Sellmore case, an important viewpoint would be that of the sales representatives who are going to be affected directly by whatever changes are made to the compensation and evaluation system. Another viewpoint might be from the customer perspective.

The final step in Brookfield's critical thinking process involves taking informed action.¹⁹ Clearly, the entire focus of the critical thinking process is to take some action. We want this action to be informed action that is supported by the evidence at hand and a process of well-reasoned thought and analysis. In short, we want to be able to take action based on evidence we find well-thought-out and convincing. In some cases, the instructor may want to select or develop a case in which the problem is not as obviously stated or apparent as we have presented in our example. The only modification that would need to be made to Brookfield's approach would be to add the definition of the problem or problem statement as a first step in the critical thinking process. For our purposes, the problem being experienced at Sellmore is stated very clearly in the opening paragraph of the case, so we have chosen not to include this modification in our notes.

We recommend using the Sellmore case in the following manner:

- Give the students the case in a classroom setting. Ask them to read it individually, and then have them work in groups to discuss what they think may have gone wrong with the new compensation system. As part of this exercise, ask each group to also discuss what they believe was causing the inability of the sales force to generate sales from new customers.
- After allowing sufficient time for the above discussion, distribute to each student an outline of Brookfield's four steps in the critical thinking process with a brief explanation of the steps provided above.
- Now ask each team to apply the four-step process by discussing each of the steps in their groups. As part of this process, ask for input about how each of the four steps altered their views about manage-

ment's decision-making process. Do they believe that the four-step process would have led to a better decision about how to design a new compensation and evaluation system for the sales force?

Application of each step of the Brookfield process follows and can be used by the instructor to give the class a final debriefing of the case following the steps recommended above.

HUNTING FOR ASSUMPTIONS

We have identified four key assumptions that were either explicitly or implicitly the basis for Tom Driver and Leo Sellmore's decision to both propose and approve the new sales compensation and evaluation system. We hope that the combined analysis and discussion of each of the class teams will bring forth these key assumptions along with other suggestions.

The first and perhaps most obvious assumption is that you need a commission system to motivate a sales force. The accepted norm in sales is that commission systems are the primary ingredient to both motivate and hold accountable any sales team. We doubt that any student team would challenge this basic assumption by proposing that the sales force be put on a 100% salaried form of compensation. The expected dynamic will be centered on making a forceful case that if you want to change the behavior of a sales team, you will have to increase the compensation system in a way that will encourage reps to call on new customers by increasing the commissions paid for these new sales. We expect that the arguments will center around a discussion of the rate of commission, in our case 4% on new sales, as being too low relative to the 2.5% on existing sales. The instructor should not be surprised if some teams advocate raising the commission on new sales and lowering the commission on existing sales. Again, the clear assumption behind such discussions will be the strongly held belief that you have to motivate with commission dollars the sought-after change in behavior.

The second assumption that is evident is the belief that base salaries are too high. The case indicates that average salaries have reached the point where 70% of compensation is in base salaries. Has this level of base pay created a "cushioning effect" for sales reps that may be impeding their willingness and motivation to

stretch them or have them go the extra mile to generate new sales? Is this base pay encouraging them to just continue to "pick the low-hanging fruit" by calling on the same customers they've always relied on for their compensation? It would not be surprising to have a number of the groups make the case for a compensation system that is more focused on commissions as opposed to base compensation. It is doubtful that students will challenge the long-held belief in sales that if you want to motivate a sales force it must be done with a carrot-and-stick approach. One way to move the dial more in the direction of motivating sales reps to find new business is to make it more favorable for them to do so—in essence, this means higher commissions.

The third major assumption that should be explored is that numerical targets, quotas, and rankings will be effective in generating new sales. This is obvious from the new commission structure favoring an increased commission rate for new business and the use of sales quotas for both new and existing business. It is not unusual for sales teams to be put into a competitive situation as a means for motivating and aligning behavior. Clearly, the decision to rank members of the team is being done in the hope that it will stimulate a renewed effort to generate the needed increase in new sales.

The fourth major assumption is that "cold calling" will increase new sales. In fact, as part of the new plan, Sellmore has imposed a targeting minimum of 15 cold calls per month. It clearly expects this effort to lead to new sales for two reasons: (1) Sales quotas have been established not only for sales to existing customers but also for new sales, and (2) the higher commission rates for new sales extend for a two-year period from the date of the first sale. It is clear that Sellmore is expecting the cold calling to be productive in generating new sales.

Although not stated explicitly, there is certainly an implied assumption that the new compensation and evaluation system is fair. We can arrive at this conclusion given that the entire sales team will be ranked annually. No facts are presented that would lead the reader to question whether any distinction will be made for demographic or economic differences among the three regions. Evaluation and ranking of each sales rep will be on the basis of his or her level of sales for both new and existing business. There does not appear to be

any allowance for differentiating between sales reps and their territories.

CHECKING ASSUMPTIONS

The second step in Brookfield's critical thinking process involves checking assumptions to determine when they make sense and when they do not. In effect, we are attempting to validate the basis of our assumptions. A useful starting point is to ask the class how they would begin the process of checking or validating the assumptions pointed out in step 1. This question can lead to a discussion of the difficulty of checking or validating assumptions that do not involve verifying stated facts or empirical data. An examination of the assumptions mentioned in step 1 obviously is based on anecdotal evidence, popular opinion, and common business and sales practices. Clearly, the important feature of this step in Brookfield's process, as it relates to Sellmore, is to get the class to discuss why Tom Driver and Leo Sellmore were so sure the root of their firm's problem was a sales commission and employee evaluation issue. By focusing on compensation and evaluation, is there a risk that both individuals may have overlooked other key issues such as sales training, marketing research, and database management issues?

Another issue that should be explored is why Tom Driver and Leo Sellmore were so sure that the proposed system is the right course of action for the sales force. If the company is really adopting the conventional wisdom in sales in terms of compensation and ranking, what evidence is there that such an approach is the correct one for the business model and sales system currently in effect at Sellmore? Were these questions and issues explored in sufficient detail prior to implementing the current changes? Finally, did Tom Driver and Leo Sellmore consult with any of the sales reps in an attempt to determine why cold calling and prospecting for new business had declined in the past 24 months? Were any of the reps asked why more time was being spent in the office and not out on the road? All of these questions clearly relate to an attempt to "check assumptions" in order to determine how valid the underlying assumptions are to the proposed changes adopted by Sellmore.

SEEING FROM DIFFERENT VIEWPOINTS

The third step in Brookfield's model recognizes the importance of trying to see our assumptions and actions from differing viewpoints. In effect, the decision maker is being asked to explore the underlying assumptions of the decision he or she is about to make, as well as the decision itself, from the viewpoint of others, especially those most directly affected by the proposed decision.

Those most affected by the decision were the sales reps. Not only did the decision affect their compensation structure but also how they were to be evaluated. What may be missed by the class, but clearly important, is that the decision will impact the working relationship between sales reps and their existing customers. More time out of the office and on the road plus the focus on generating new customer sales will clearly affect the current working relationships with existing customers. If Tom Driver and Leo Sellmore had examined their underlying assumptions and the decision they were contemplating through the lens of the sales reps and from the perspective of their existing customer base, some of the issues that led to the subsequent problems they are now facing with these customers may have become apparent.

Another important relationship that may be affected is the level of cooperation between the sales reps. They are clearly now in head-to-head competition with each other because of the decision to rank each of the reps annually. While comparisons between reps were possible in the past, the new system has formalized the process and put them in direct competition with each other. This will certainly have an impact on their willingness to cooperate and help each other. While we have no way of knowing for sure if any of the reps would have been this candid if asked by management to comment on the proposed changes prior to the decision being made, we know Tom Driver and Leo Sellmore made no attempt to see either their assumptions or proposed decision through the lens of the group most affected by the changes.

TAKING INFORMED ACTION

Brookfield points out that the goal of the critical thinking process is to take some informed action, which is based on thought and analysis supported by evidence.

A good way to begin the student discussion is to ask the class if they think Tom Driver and Leo Sellmore made an informed decision *prior* to applying Brookfield's critical thinking process. (Recall that the class was asked to read the case individually and then work in groups to discuss what they think may have gone wrong with the new compensation system prior to being given the Brookfield critical thinking process handout.) The clear expectation here is that most groups will admit to some support for the course of action taken by Sellmore before considering the Brookfield process. They may even express surprise at the problems the firm is now facing. It should not be surprising if most groups put the blame about what has gone wrong on the sales reps and not management.

The stage is now set for the instructor to ask if, based on Brookfield's model, Sellmore management made an informed decision. We should expect that each group has concluded that management did not make an informed decision. There is no evidence in the case that management followed any of the steps outlined in Brookfield's process. Assumptions both explicit and implicit were not surfaced and examined, no evidence was presented that management made any attempt to check or validate its belief that the compensation and sales rep evaluation system were responsible for the lack of new sales, and management did not make any attempt to view the decision it was about to make through the lens of the groups most affected. Consequently, the only viable conclusion that one can reach, based on an application of Brookfield's model, is that management did not make an informed decision.

Finally, we believe it is somewhat beneficial for the class to spend time discussing how the critical thinking process could have anticipated and, therefore, prevented the problems that Sellmore encountered. Clearly, the focus on generating new customer sales by offering higher commissions and establishing a sales quota and ranking system for sales reps succeeded in generating increased new business. This increase in new business, however, came at the expense of declining sales to existing customers. If management had spent the time examining its assumptions and the possible impacts on the entire sales process from the proposed course of action—and had consulted with sales reps prior to mak-

ing the decision—some of the issues that resulted might have been prevented. It certainly is possible that the sales reps could have surfaced issues about the lack of training to make cold calling effective, the inordinate amount of time that might have to be taken away from existing customer sales and service, the dysfunctional effects that the new system would have on the level of cooperation among the sales team, and the effect of fear and pressure on the morale of the sales team. ■

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ENDNOTES

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