

A Best Practice Based Model of Context-Specific Critical Thinking in Management

Anthony R. Romano*

The objective of this study was to address the problem that existing models of critical thinking appear not adequate in describing critical thinking in context-specific areas such as management. I used Delphi research methodology to conduct a pilot study to collect the opinions of a purposive sample of 24 management experts. The experts consisted of executives and professors of management from different areas of the United States. This study was conducted over a two-year period from 2006 to 2007. Two rounds of surveys were conducted via an Internet link to a secure Web site. In the first survey, I asked the experts to respond to open-ended questions that asked: What competencies, best practices, and/or strategies are indicators of critical thinking in business management? The first survey was exploratory and allowed the experts to brainstorm/explore the topic. In the second round of surveys, I derived multiple choice questions from data reduction of the first round responses that enabled the experts to judge the level of importance of each element. After completing the second survey, the sample of subject matter experts reached a consensus about management practices they believe are important indicators of context-specific critical thinking in management. This study contributes to our understanding of critical thinking in management. It is unique in that prior research on critical thinking appears to focus on generic critical thinking. This study questions prior theory and argues that critical thinking in vocations such as management is better understood when context is taken into consideration. Management education and practice may benefit from the resulting critical thinking elements that were identified.

Field of Research: Research for Change in Management Education and Practice

1. Introduction

Business schools are becoming concerned that undergraduate and MBA programs may lack relevance to the way business manager's practice. Educators are interested in preparing learners to be more responsive to the needs of businesses by learning more useful skills (Bennis & O'Toole 2005). One important skill is the practice of critical thinking in management. Understanding, effectively teaching, and evaluating critical thinking in business management is a goal of educators. Decision making is the central role of managers and critical thinking appears to be a key element in decision making (Menkes 2005). Ennis (1993) supports the importance of critical thinking in decision making. The importance of critical thinking in management has been expressed by many other scholars including Sormunen (1992), Brookfield (1997), and MacPherson (1999). Bennis and O'Toole (2005) argue that "most issues facing business leaders are, in the final analysis, questions of judgment" (p. 99). Judgment depends on critical thinking and appears to be a key factor in decision making. My research was focused on experiential, practice-based critical thinking in management.

* Dr. Anthony R. Romano, Business Division, Caldwell College, USA. Email: aromano@caldwell.edu

1.1 Statement of the Problem

Generic models of critical thinking are inadequate in describing critical thinking in context-specific areas such as management.

1.2 Purpose of the Study

The purpose of this exploratory study was to reach a consensus among management experts in identifying practice-based elements of critical thinking. The elements identified expressed the experts' insights of what a best-practice model of critical thinking in management might include. This research suggests an empirically based way of looking at critical thinking in vocations.

1.3 Research Questions

The following research question was examined:

What do management experts believe are important elements (indicators) in a model of critical thinking in management?

The following sub-question supported the data collection process:

What critical thinking competencies, best practices, and/or strategies are essential in business management? The sub-question was the stem of eight open-ended questions used to solicit responses in the first survey. The focus of the study was to identify contextual critical thinking best practices; what critical thinking managers do.

1.4 Theory

This study and the resulting elements of critical thinking in management are based on the theory that critical thinking in a vocation is grounded in contextual competence and the ability to implement best practices/strategies. My research was based on the theory that critical thinking in management is part of the experiential background knowledge of management and is an integral part of the context of the management vocation. I argue that we need to go no further than best practices to find context-specific elements of critical thinking in any vocation. Background knowledge is often tacit and gained through best practice experience.

1.5 Definition of Terms

Generic critical thinking includes analysis, interpretation, synthesis, evaluation, deduction, induction, assumption identification, inference, and irrelevance (Watson & Glaser 1964; Ennis & Weir 1985; Facione 1990).

Context-specific critical thinking means to be able to think about a subject contextually in terms of internalized tacit background wisdom. It means to be able to reflect on management problems in the overall context of the institution and its environment. Critical thinking appears bound to subjects and contexts (Ennis 1989; Brookfield 1997).

1.6 Organization

The remainder of this paper includes a literature review that develops the foundation for this study. The methodology section describes how this study was implemented and is followed by a discussion of the results and conclusions.

2. Literature Review

A foundation was established by examining prior studies of critical thinking and reviewing prior attempts at developing contextual critical thinking models. My directional hypothesis is that critical thinking in vocations is context-specific and is based on previous studies that are discussed below.

2.1 Arguments for a Context-Specific Critical Thinking Model

Ennis (1993) appears to support the importance of the management related topic of critical thinking in decision making, when he argues that critical thinking is a reflective process that is “focused on deciding what to believe or do” (p. 180). The notion of do or doing implies action and decision making. Decision making may be the most practical and useful application of critical thinking in management.

McPeck (1990), an outspoken advocate of subject-related critical thinking, states clearly that critical thinking always needs to involve a subject. He further argues that it does not make sense to say “I teach thinking in general but not about anything in particular” (p. 20). In McPeck’s view, “all such talk is literal nonsense” (p. 20). His point is that if thinking is not about a subject, it cannot be described as thinking at all; and it does not make sense to think otherwise.

Brookfield (1997) lends support to the notion that critical thinking is significantly context specific. He verbally (S Brookfield 2006, pers. comm., 6 January) reiterated that critical thinking is context specific and that generic models ignore that reality. He argues that “critical thinking . . . is irrevocably context bound” (p. 18). In Brookfield’s view, critical thinking is a socially-constructed process, is contextual in nature, does not lend itself to standardized evaluations, and calls for contextually-grounded assessment.

2.2 Support of Context-Specific Critical Thinking in Management

Hagen (2005) and Velde, Wittman, and Vos (2006) recognized that an aspect of critical thinking is context specific. Generic models of critical thinking do not include management-specific context; therefore, they are not adequate for understanding critical thinking in context-intense areas such as management. Hagen’s recommendations supported the notion that critical thinking in vocations is context specific and provided groundwork for this study. I set out with this research to develop a model of critical thinking in one context-specific area; namely, business management.

Critical thinking may be the most important skill needed to be an effective manager. Business demands workers who can think critically (Sormunen 1992). Neumann (as cited in Brookfield 1987) argues that numerous managerial activities such as strategic planning, organizational restructuring, discovering commonalities, launching

Romano

new tactics, and risk assessment require critical thinking. “Critical thinking in managerial life is recognized in attempts to solve real problems and take actions in a purposeful, logical way” (Brookfield 1987, p. 141). In all types of organizations, managers are expected to use critical thinking to solve problems and make decisions.

Kealey, Holland, and Watson (2005) developed a model for encouraging critical thinking in accounting. Students were required to read a selected accounting article and write an essay response. Evaluation of the essay was based on a context-specific accounting rubric. Springer and Borthick (2004) used computer-based business simulations to provide context in moving from knowing to thinking. They argue that simulations provide contextual experiences that support development of the higher-order thinking skills necessary for success in business.

Smith (2003) sums up the argument between generic and context-specific critical thinking by suggesting that the domain-specific group asserts that thinking is contextual, while critical thinking generalists argue that critical thinking skill can be applied across all vocations. It is hard to conceive how one could think critically in vocational areas such as medicine, law, and engineering without context-specific critical thinking skills. Hence, my hypothesis is that we need examine best practices to find context-specific elements of critical thinking in any vocation. That is what I have attempted to do in this study.

3. Methodology and Research Design

Delphi research methodology was originally developed by the Rand Corporation to “obtain the most reliable consensus of opinions of a group of experts by a series of intensive questionnaires interspersed with controlled opinion feedback” (Dalkey & Helmer 1963, p. 458). According to Alexander and Serfass (1999), Delphi is a multi-step structured process for reaching an expert consensus. Each round of responses are analyzed, revised, and reissued for additional rounds of refinement.

I used Delphi methodology to bring together a virtual group of management experts. In this methodology, the participants were anonymous to each other to encourage free expression and avoid any possibility of one influencing another. I asked the participants to respond to online surveys via the Internet. The surveys were implemented in two rounds. The first round consisted of open-ended questions to encourage brainstorming and resulted in identifying 741 elements. The second survey round consisted of 263 multiple-choice questions that were derived from the responses to the first survey. The second round enabled participants to reach a consensus regarding elements they thought should be included in a best-practice model of context-specific critical thinking in management. The experts identified 167 elements as important and rejected 96 due to low importance or lack of consensus.

3.1 Sampling Frame

“The idea behind qualitative research is to purposefully select participants . . . that will best help the researcher understand the problem and research the question” (Creswell 2003, p. 185). This type of sampling procedure is referred to as purposeful sampling (Creswell 2003). “A key factor in any Delphi study is the qualification of the population selected to receive the questionnaires” (Rossman & Eldredge 1982, p. 3).

Romano

The selection of a purposive sample of qualified experts was imperative to the success of this study.

I set this study among a population of business executives and scholar-practitioners in the field of business management. The population of interest included business executives in publicly-owned corporations, privately-owned corporations, or not-for-profit organizations with more than 15 years of management experience. Scholar-practitioners were invited to participate if they had at least 5 years of management practice or consulting experience and more than 10 years of academic experience in management. Faculty management experts included noted and published scholar-practitioners.

I invited 76 experts from the USA, who have taught and/or practiced management and 24 agreed to participate. All participants responded to the surveys on an Internet Web site. After completing the first round, 4 participants left due to conflicting obligations. A sample of 20 experts including 8 executives and 12 professors of business completed the second round of the study.

3.2 Data Collection and Analysis

The first round survey was comprised of open-ended questions that were used for brainstorming to identify as many variables as possible (Schmidt, Lyytinen, Keil, & Cule 2001). Linstone and Turoff (1975) advise that the first round should be used to enable exploration of the research question and allow participants to contribute information they feel is important. The experts in the sample group were asked what they believed were competencies, best practices, and strategies indicative of critical thinking in major functional and/or skill areas of management. These questions were in the form: What are three to five competencies, practices, and/or strategies indicative of critical thinking in establishing business goals and objectives, organizing and utilizing resources, leading and motivating, monitoring and controlling, unstructured problem solving, maintaining competitive advantage, and effective management (Griffin 2006; Jones & George 2003).

The open-ended questions in the first round resulted in 741 responses that I downloaded from the Internet Web site and installed in a spreadsheet for analysis. Data reduction eliminated duplicate elements. Data quality was dependent on the opinions and experiences of the participants (Creswell 2003). As a result of this process, 263 best practice indicators of critical thinking were identified and used to create the second round survey. The second round survey was the primary consensus-building process. It identified level of importance and verified consensus. Participants rated the level of importance of each item using a five-point scale ranging from (5) very important, (4) important, (3) neutral, (2) unimportant, and (1) very unimportant.

Responses to the second round survey were analyzed to determine the mode, median, interquartile range, mean, and standard deviation and to identify level of importance and consensus for each response. The median and interquartile ranges were identified to be the best indicators of central tendency, because they minimized the effect of skewing of scores and sensitivity of the mean to extreme values at the low end (Schmuller 2005). The interquartile range defines responses lying in the second and third quartile, provides information about the variability of each element,

and was a good indicator of consensus. A small interquartile range indicated a high consensus. To be considered very important, on a scale of 1.0 to 5.0 where 5.0 is very important, an element had to have a median equal to or greater than 4.5 and an interquartile range equal to or less than 1.0 (indicating high consensus). To assure a high level of importance and a strong consensus, only elements with a high median and low interquartile range were identified and retained (Edwards 2001; Stone Fish 1989).

As previously stated in the literature review, Smith (2003) sums up the argument between generic and context-specific critical thinking. He suggested that the domain-specific group asserts that thinking is contextual, while critical thinking generalists argue that critical thinking skills can be applied across all vocations. What I have attempted to do in this study is to bring focus to and strengthen the case for context-specific critical thinking. My hypothesis was that we need to examine best practices to find context-specific elements of critical thinking in any vocation. I believe that the following results and conclusions have improved previous models of critical thinking by better defining the context-specific argument.

4. Discussion of Findings/Results

The results of the study included a total of 167 best practice indicators of critical thinking that the expert panel rated important or very important with very high consensus. In the interest of being concise and focusing here on only those items of very highest importance and consensus, I have selected the most significant indicators with the highest consensus. The following list of practice-based indicators of critical thinking in management all had a mode of 5.0, a median of 5.0 and a mean of at least 4.6 on a scale of 1.0 to 5.0 where 5.0 is the highest score. These items also had very low interquartile ranges as well as the lowest standard deviations indicating that most experts selected these as very important. Standard deviations or interquartile ranges greater than 1.0 were considered lack of consensus (Sheridan 2005; Topper 2006). Elements/indicators were retained if rated very important with high consensus.

The most significant elements/indicators resulting from this research are listed below by themes that became apparent during this study.

4.1 Communication Skills

- Ability to practice clear oral and written communication skills; willingness to communicate openly.
- Concise and effective communication of organizational values, purpose, strategy, and expectations.
- Skill in setting and effectively communicating clearly defined goals and clear, realistic, and measurable strategic objectives.

4.2 Visionary Skills

- Ability to function with awareness and understanding of the global competitive business environment.

Romano

- Skill in analyzing and evaluating the organizations' strengths, weaknesses, opportunities, and threats.
- Skill in understanding limitations to what is possible in terms of resources, time constraints, and task/goal achievement.
- Ability to imagine a desired future state and long-term vision for the organization.
- Ability to think strategically; to see and understand the "big" picture and to create a holistic vision of the future organization.
- Ability to create and articulate a vision that engages employees and captures their imagination.
- Ability to clearly define a mission and direction.
- Ability to perceive patterns, relationships, and trends in analyzing and synthesizing information in establishing organizational goals and objectives.
- Skill in environmental scanning; understanding long-term external market effects on possible business scenarios.
- Skill in understanding and foreseeing customer needs and wants; customer centric mind set.
- Ability to exhibit flexibility in meeting client needs and interacting with customers.

4.3 Leadership Skills

- Ability to understand and consider the role, impact, and use of organizational culture in managing.
- Ability to recognize capable, talented people; skill in understanding individual strengths and weaknesses.
- Skill in finding and relentlessly developing organizational talent; ability to objectively evaluate people.
- Skill in accurately matching peoples' abilities to job requirements and organizational goals.
- Skill in developing alignment of trust and ethics in the organization.
- Ability to effectively select, motivate, and lead teams; create team and business synergies in goal accomplishment.
- Highly developed social skills and constraint in being judgmental.
- Ability to practice with emotional intelligence.

4.4 Unstructured Problem Solving Skills

- Ability to understand and think in the context of the business.
- Exhibits strong conceptual and intuitive skills in managerial practice.
- Skill in using analysis, interpretation, and evaluation in the management process
- Ability to think creatively in management problem solving.
- Ability to listen, analyze, and objectively evaluate alternatives in decision making.

Romano

- Willingness to take an informed risk in the absence of complete information and to act in the face of uncertainty.
- Ability to separate important internal and external data from large masses of data.

The above responses are indicative of the expert opinions regarding context-specific elements of critical thinking in management. These responses are applicable to business management and many are applicable to management in all types of organizations. Participants in the field of management shared their insights in an effort to discover a consensus of important practice based indicators of critical thinking. I gathered these expert opinions from those who had academic, empirical, experiential, and practice-based tacit knowledge of best critical thinking practices. These insights provide management faculty and business executives with a description of important managerial critical thinking elements. The elements identified are proposed as indicators of critical thinking in management. The results may be useful for future management theory building, curriculum development, and development of an assessment instrument.

5. Conclusions, Assumptions, Reliability and Validity, Limitations

5.1 Conclusions

The purpose of this study was to try to reach a consensus of expert opinions about important elements/indicators of a best practice model of critical thinking in management. The literature supports the notion that critical thinking is significantly context specific. Hagen's study suggested that critical thinking in vocations needed context-specific models. The indicators of critical thinking developed in this study were sensitive to Brookfield's (1997) notion of locally-grounded context. It was based on contextual elements that were critical thinking indicators provided by experts who were grounded in management best practice.

My research supports the theory that critical thinking in vocations is contextual and requires acquisition of tacit background knowledge. How best to accomplish this is the question. Discussions that involve critical thinking activities, where concepts and principles of critical thinking are implicit, are recommended. I support the idea that critical thinking is to be found in practice-related experiential activities that are for the most part contextual, captured in the experiences of subject matter experts, and mostly tacit. Case studies and examples from practice may be useful to provoke critical thinking discussion and reflection, but are activities at a distance.

I have used computer simulations in graduate operations management classes to facilitate the practice of critical thinking. Learners deal with computer models of operations problems where they are able to interact, make decisions, and see results in different scenarios. They might also simulate a project management activity and derive project plans. Simulation enables the practice of management tasks and decisions.

In conclusion, my argument is that vocational critical thinking is based on the wisdom gained in experiencing a practice. Therefore, I recommend internships like those used in law and medicine. The internships should be full-time, six months or more in

duration, and should be facilitated by expert staff. They would need to be set up cooperatively between business schools and business firms to facilitate the transfer of high quality, contextual knowledge by experienced professionals.

5.2 Assumptions

Critical thinking in management can be expressed in terms of the quality of competencies and best practices. Elements/indicators of critical thinking in management can be identified by management experts and these indicators of critical thinking can be learned.

5.3 Reliability and Validity

Delphi Technique is a qualitative research methodology. In Delphi research, repeating the questions and their continued analysis adds to reliability of the results (Alexander & Serfass 1999). In this study, reliability is indicated by the consistency of themes that resulted from the consensus process.

Validity of the participants' responses was corroborated by member-checking (Gall, Gall, & Borg 2003). Member-checking is the process by which individual participants review and accept or reject responses of the other participants. I used member-checking to determine "the accuracy of qualitative findings through taking the final report or specific descriptions or themes back to participants and determining whether these participants feel they are accurate" (Creswell 2003, p. 196). The second round survey asked participants to indicate level of importance and consensus regarding the first round survey responses. Validity of results was enhanced by consistency of agreement among participants; elements that did not pass the participant member-checking process were discarded.

5.4 Limitations

This was an exploratory research study where I attempted to identify what a group of management experts believe are indicators of critical thinking in business practice. There may be other indicators of critical thinking that were not identified. Although extreme care was taken in the selection of the expert panel, there could be a lack of uniformity in the quality of the experts. The sample of experts may not be representative of other management experts. It is likely, but there is no guarantee, that another purposive sample of management experts would come to similar conclusions. The participant communication process was limited within the structure of Delphi methodology and was based on use of the survey questionnaires implemented in this study.

5.5 Suggestions for Future Research

This type of study may be replicated in other disciplines/vocational areas where context-specific critical thinking is an important requirement. Some examples are: finance, economics, nursing, etc.

The elements identified may be used with another sample of executives and management professors to examine whether there is any significant difference between the two groups in the mean or medium scores for each variable.

References

- Alexander, W & Serfass, R 1999, *Futuring tools for strategic quality planning in education*. Milwaukee, WI: ASQ Quality Press.
- Bennis, WF & O'Toole, J 2005, 'How business schools lost their way', *Harvard Business Review*, vol. 83, no. 5, pp. 96-104.
- Brookfield, SD 1987, *Developing critical thinkers*. San Francisco: Jossey-Bass.
- Brookfield, SD 1997, 'Assessing critical thinking', *New Directions for Adult and Continuing Education*, vol. 75, pp. 17-29.
- Creswell, JW 2003, *Research design: qualitative, quantitative, and mixed method approaches*. Thousand Oaks, CA: Sage.
- Dalkey, N & Helmer, O 1963, 'An experimental application of the Delphi method to the use of experts', *Management Science*, vol. 9, no. 3, pp. 458-467.
- Edwards, S 2001, *The essential elements of multi-family group therapy: A Delphi study*. Unpublished Ph.D Dissertation, Virginia Polytechnic Institute and State University, Blacksburg:Virginia.
- Ennis, RH 1993, 'Critical thinking assessment', *Theory into Practice*, vol. 32, no. 3, pp. 179-186.
- Ennis, RH 1989, 'Critical thinking and subject specificity: clarification and needed research', *Educational Researcher*, vol. 18, no. 3, pp. 4-20.
- Ennis, RH & Weir, E 1985, *The Ennis-Weir critical thinking essay test*. Pacific Grove, CA: Midwest.
- Facione, PA 1990, *Critical thinking: a statement of expert consensus for purposes of educational assessment and instruction*. Millbrae: California Academic Press.
- Gall, M, Gall, J & Borg, W 2003, *Education research: an introduction*. Boston, MA: Allyn and Bacon.
- Griffin, R 2006, *Fundamentals of management*. Boston, MA: Houghton Mifflin Co.
- Hagen, MW 2005, *Critical thinking skills study: Vocational nursing*. Unpublished Ph.D Dissertation, Capella University, Minneapolis, MN.
- Jones, GR & George, JM 2003, *Contemporary management*. New York: McGraw-Hill.
- Kealey, BT, Holland, J & Watson, M 2005, 'Preliminary evidence on the association between critical thinking and performance in principles of accounting', *Issues in Accounting Education*, vol. 20, no. 1, p. 33.
- Linstone, H & Turoff, M 1975, *The Delphi method: Techniques and applications*. Reading, MA: Addison-Wesley.
- MacPherson, K 1999, 'The development of critical thinking skills in undergraduate supervisory management units: Efficacy of student peer assessment', *Assessment & Evaluation in Higher Education*, vol. 24, no. 3, pp. 273-284.
- McPeck, JE 1990, *Teaching critical thinking*. New York: Routledge.
- Menkes, J 2005, *Executive intelligence*. New York: Collins.
- Rossman, MH & Eldredge, S 1982, Needed functions, knowledge and skills for hospital education directors in the 1980's: a Delphi study. (ERIC Document Reproductive Service No. ED221752).
- Schmidt, R, Lyytinen, K, Keil, M & Cule, P 2001, 'Identifying software project risks: An international Delphi study', *Journal of Management Information Systems*, vol. 17, no. 4, pp. 5-36.
- Schmuller, J 2005, *Statistical analysis with Excel*. Hoboken, NJ: Wiley.
- Sheridan, E 2005, *Intercultural leadership competencies for U.S. business leaders in the new millennium*. Unpublished Ph.D Dissertation, University of Phoenix, AR.

Romano

- Smith, G 2003, 'Beyond critical thinking and decision making: Teaching business students how to think', *Journal of Management Education*, vol. 27, no. 1, pp. 24-51.
- Sormunen, C 1992, 'Critical thinking in business education', paper presented at the American Vocational Association Convention, St. Louis, MO, December.
- Springer, CW & Borthick, AF 2004, 'Business simulation to stage critical thinking in introductory accounting: rationale, design, and implementation', *Issues in Accounting Education*, vol. 19, no. 3, pp. 277-303.
- Stone Fish, L 1989, 'Comparing structural, strategic, and feminish-informed family therapies: Two Delphi studies', *The American Journal of Family Therapy*, vol. 17, no. 4, pp. 303-314.
- Topper, W 2006. *Leadership change in privately controlled businesses: A Delphi study of succession planning best practices*. Unpublished Ph.D Dissertation, Capella University, Minneapolis, MN.
- Velde, B, Wittman, P & Vos, P 2006, 'Development of critical thinking in occupational therapy students', *Occupational Therapy International*, vol. 13, no. 1, pp. 49-60.
- Watson, GB & Glaser, EM 1964, *Watson-Glaser critical thinking appraisal*. New York: Harcourt, Brace, and World.