Teaching Critical Thinking in Accounting Classes: Asian Higher Education Context

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Abstract

For some time, educators have been aware of the need for their students to develop critical thinking skills, and much has been published on the topic. However, although critical thinking skills are recognized as an important aspect of students' learning, it seems that some educators forget that students are not born with these skills, and do not naturally develop them as they move through educational systems. Rather, they are learned. This is also true of accounting education. It is therefore important to endeavour to equip learners with critical thinking skills to enhance their chances of successful careers in accounting in a rapidly changing business and work environment. This paper discusses the importance of teaching critical thinking skills and suggests some teaching strategies.

Keywords: *Subject knowledge and concepts, understanding, application, analysis, synthesis, evaluation, conclusion, inference and implication.*

Introduction

In the 20th century, there was a significant shift from manufacturing to information and knowledge services, with the result that we are now living and working in a global knowledge economy. Information and communication technology are transforming how we learn, work, do business, and the general work environment. As a result of these changes, current employers are looking for employees who have more than routine skills, in order to be successful in the rapidly changing world of business. Today, a successful professional career in business depends on being able to communicate, share information, and use it to think critically and solve complex problems. Employers are looking for adaptive and innovative employees who are able to respond to new demands and changing circumstances, and use technology in the creation of new knowledge (Beers, n.d), thus increasing the value of their businesses.

In light of these changes in the business environment, academics and industries have been calling for the development of a changing skills-set to be instilled in higher education graduates (Marriage, Colthorpe, & Zimbardi, n.d.). Employers in the 21st century are looking for employees with a different kind of skills-set. Both employers and educators have been calling business and accounting teachers to teach students to acquire creative and innovative skills, collaboration skills, information management skills, critical thinking and problem solving skills, and life-long learning skills (Beers, n.d.). However, many students are still being taught 20th century skills in the 21st century. Instead, students need to acquire skills that will equip them for future employment, and not for the past. Therefore it is important that accounting teachers understand how to help students to acquire 21st century skills.

The Focus of This Paper

As mentioned above, one important 21st century skill is critical thinking. This short article will focus only on critical thinking for accounting students. It (1) defines critical thinking; (2) outlines the levels of critical thinking skills; (2) discusses the reason why critical thinking is important for accounting graduates; (3) presents some methods of teaching critical thinking skills in accounting courses; and ends (4) with a summary of the main points covered in the paper.

What is critical thinking?

Critical thinking is a concept that is many years old (Rothstein, Wilder, & Jacobsen, 2007), and is regarded as important in schools, at work, and in our personal lives. The term is defined by Scriven and Paul as "the intellectually disciplined process of actively and skilfully conceptualizing, applying,

analysing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action" (Scriven & Paul, 2007, p. 1). Tempelaar (2006) referred to it as meta-cognition, and Flavell (1979) described it as the process of "thinking about thinking".

Facione (2004, as cited in Cascini & Rich, 2007), views critical thinking as being made up of interpretation, analysis, evaluation, inference, explanation and self-regulation. Below is a brief summary of these:

1. Interpretation – ability to demonstrate an understanding of the meaning and importance of a wide range of experiences based on various situations and criteria.
2. Analysis – identification of actual and inferred relationships in different types of expression, such as belief, judgment, and experiences.
3. Evaluation – being able to evaluate and validate others' accounts of experiences, situations, and perceptions; assessment of the strengths and weaknesses of these accounts, and of alternative interpretations.
4. Inference – being able to consider and find relevant ways of addressing problems based on conjecture, hypothesis, and reasonable assumptions after considering data and other forms of input.
5. Explanation – ability to clearly express and justify one's reasoning and conclusions, based on various situations and considerations.
6. Self-regulation – meta-cognition – ability to check and correct one's inferences by reviewing all aspects of critical thinking.

Critical thinking development is not a natural process, but a product of education, training and practice (Scriven & Paul, 2007; Templelaar, 2006). It is also seen as a means of taking control of one's conscious thought processes. If one does not take control of those processes, one risks being controlled by others' ideas. In other words, instructors should train students to be thinkers and not mere reflectors of other people's thoughts (White, 1952).

Levels of Critical Thinking (Figure 1)

According to Bloom (1956) critical thinking involves several levels – the *knowledge level*, the *understanding level,* the *application level*, the *analysis level*, the *synthesis level*, the *evaluation level*, and *the implication and inference levels*. The *knowledge* level is the lowest level and is demonstrated by recalling of facts. It answers who, what, where, and when questions.

The *understanding or comprehension* level is next. At this level, students demonstrate understanding of facts or information, and the ability to summarise, explain, paraphrase and answer contrast and compare questions. Students can extract and restate the material's main ideas or central point, using only what is seen and read (Figure 1 on following page).

The *application* level is associated with problem solving by applying acquired knowledge, facts, etc. At this level, students demonstrate ability to use acquired information, concepts, and theories and apply them to new situations. They are required to demonstrate their ability to use acquired information and knowledge to answer construct, solve, and discovery types of questions.

Critical *analysis* is the next level in Bloom's Taxonomy. At this level, students are required to answer the *why and what* questions, and to explore in depth, for example, relationships; causes, relationships between variables/factors, sequence, possible problems and issues with the relationships. Students are required to demonstrate their ability to examine and break information into parts. Identifying motives or causes, making inferences, and finding evidence to support generalizations are all parts of critical analysis.

The *synthesis* level involves students demonstrating their ability to compile information together in a different way by combining elements in a new pattern or proposing alternative solutions to problems. At the synthesis level, students are required to demonstrate their ability to

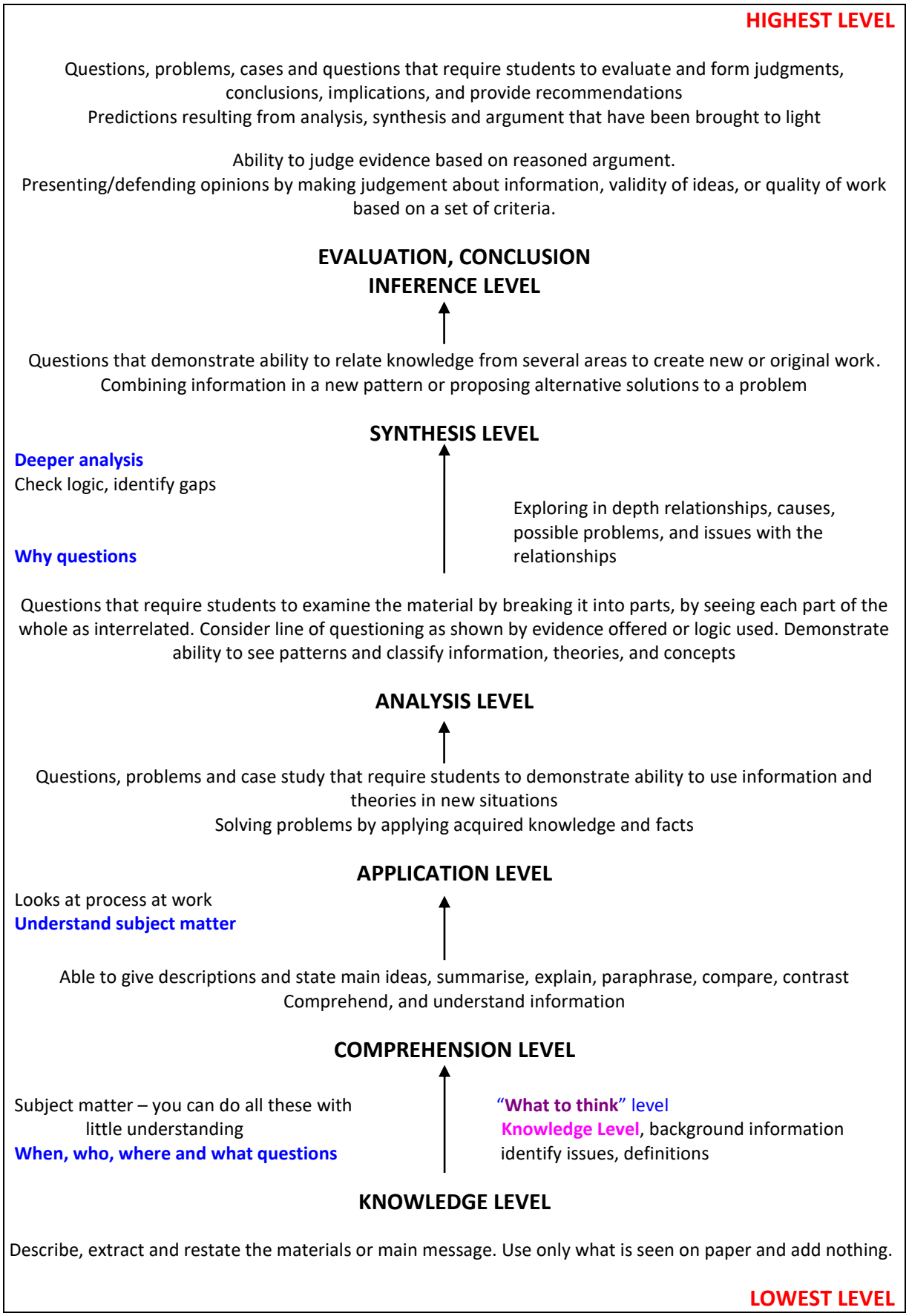

FIGURE 1: Levels of Critical Thinking

relate knowledge from several sources or areas to answer questions or create new or original work or new knowledge.

The highest level is the *evaluation* level, which requires students to demonstrate their ability to judge evidence based on reasoned argument. They should be able to present and defend opinions by making judgements about information, validity of ideas, or quality of work based on a set of criteria. Students are required to answer the evaluation, criticize, recommend, predict, evaluate, and imply types of questions.

The higher levels of thinking such as problem solving, critical analysis, synthesis, and evaluation do not develop without deliberate planning on the part of accounting course instructors to develop these skills. Accounting instructors should have well thought out teaching plans that target the specific behaviours or levels discussed above.

Why is teaching critical thinking important?

Critical thinking will contribute to success in higher education by leading students to develop skills such as concentration, deeper analytical abilities, and improved thought processes, which prepare them to succeed in the 21st century work environment.

Universities are expected to produce accounting graduates who are not only academically successful, but able to make well-informed decisions and judgments. According to Thomas (2011), the ability to make connections between learning and practice will equip students with the necessary skills for dealing with the unknown and solving problems that don't even exist today (Boud & Falchikov, 2006). Boud and Falchikov (2006) and Thomas (2011) suggest that our economy is growing at such a fast pace that it is impossible to specify what skills or knowledge will be required in the future. Therefore the best we can do is prepare students to deal with these rapid changes. Facione (2010) posits that critical thinking is crucial if learners are to be equipped with the competencies to adapt to these changes.

Although teachers expect students to learn, they seldom teach them anything about how to learn (Norman, 1980). There are two parts to education. The first is teaching the course content (what to think). This is the easy part of teaching and most teachers manage to accomplish it. The more difficult aspect of education however, and one which is often neglected, is helping students to understand and evaluate the content material (how to think). According to Schaferman (1991), many students never develop critical thinking skills because instructors and students focus all their energy on the first goal of education (transmitting and acquiring knowledge), and so they find the task overwhelming and have little time for anything else. Meanwhile, they neglect the second, more subtle goal of how to think, or critical thinking. Not only is it not taught, but its absence is not even recognized (Schalferman, 1991). This is why we should be deliberately teaching students how to think, instead of teaching them what to think.

Critical thinking is one of the most frequently used terms in education, and educators, teachers, curriculum designers, and employers, to mention just a few, agree on its importance and insist on the need to foster critical thinking skills in education (Duron, Limbach, & Waugh, 2006; Snyder & Snyder, 2008; Thomas, 2011; Schafersman, 1991). The recognition, acknowledgement, and emphasis on the value of critical thinking have become increasingly emphasized in Asia, where cultural traditions are very different from western countries (Hongladarom, n.d.). It is now generally and widely acknowledged that critical thinking has become a necessary component of education, and education policy makers are making it one of the goals of education at all levels (Hongladarom, n.d.). Both educators and education policy makers seem to agree that one of the desirable goals of education is that students are able to think creatively and critically. This ability to think critically is recognized by many as the trademark of professionals and educated individuals.

Developing Critical Thinking Skills in Accounting Classes

The quality of future Asian accountants will be shaped by the need for improvement in critical thinking skills. The accountants' functions today are more than bookkeeping; they are part of a management team. The business environment in the 21st century is complex, uncertain, and rapidly changing. It requires critical thinking professionals to cope and adapt to rapid changes. Hence, it is imperative to equip today's learners with this competency (critical thinking) to enhance their chances of successful careers in accounting. Traditional accounting education does not adequately address this need. Traditional curriculum and assessment methods, which focus on acquisition of specific knowledge, do not develop critical thinking skills. The Twenty-first century business environment demands a different approach to learning and different methods of assessment. Changes must be made in the accounting curriculum and the teaching of accounting to achieve these new skills.

Many academics and practitioners emphasize the need for accounting students to acquire critical thinking skills if they are to become successful accounting professionals (Reinstein & Bayou, 1997; Riordan, 1992). In 2003, Burnet reported the result of a study of practitioners who rated critical thinking as one of the four most necessary professional skills for accountants.

The literature suggests that teaching models that require students to memorize accounting rules and procedures fail to cultivate critical thinking (Thompson & Washington, 2015). The Bedford Committee, as early as 1986, emphasized that traditional accounting lectures failed to stimulate creativity and innovative thinking. Therefore, pedagogies should be designed to develop a higher order of thinking. Accounting teachers can modify their teaching and assessment methods to enhance critical thinking among their students. The writers of this paper agree with the literature espousing the need for teachers to put critical thinking skills as one of the major goals of their teaching. Instructional methods, activities and assessments should encourage students to actively investigate the world in a structured, specific way, as opposed to blindly taking the traditional and authoritative way of delivering content.

Lundy et al. (2002) posited that the quality of critical thinking skills could be enhanced over a period of one semester if classes were intentionally set up to promote them. According to Myers and Dyer (2006), research has determined the effectiveness of some successful classroom techniques. McCormick and Whittington (2000) reported that the use of problem sets, individual and group written reports, group presentations, and laboratory tests led to improved critical thinking skills of students. As early as 1986, Meyers put forward the suggestion that debates, presentation of problems, and small group activities would lead to higher critical thinking skill development. Also, in 1987, Bransford, Sherwood, and Sturdevant suggested that students be encouraged to define problems precisely, and then break them into manageable parts.

Related literature suggests different ways of teaching critical thinking skills (Duron, Limbach, & Waugh, 2006; Halpern, 1999). The remainder of this article will focus specifically on a few common approaches and techniques that the authors have found helpful in developing critical thinking skills in their own accounting courses. A combination of several approaches to teaching critical thinking are suggested. These are lectures incorporating questions, assignments, workshops, tests and examinations, and modelling. A summary of these is provided in Figure 2. These teaching methods will not automatically result in success, but if teachers of accounting courses expend some effort in planning, delivering and assessing students' performance in terms of critical thinking skills, their efforts in this regard will bring valuable results for their students.

Based on our experiences, the writers suggest several things accounting teachers should pay attention to in good teaching, particularly teaching critical thinking skills. These suggestions, not in the order of importance, include: (1) challenging students to understand material content and not memorise; (2) asking questions that require students to examine, create, contrast, solve, interpret,

debate, analyse, synthesize and evaluate; (3) encouraging active classes with purposeful and well planned activities; (4) requiring students to think about what they are learning, and teachers to think about what they are teaching, and what their students are learning; (5) applying material and concepts learned to real world situations, using case studies and comprehensive problems; (6) creating an environment to encourage students to continue to learn collaboratively and independently; (7) avoiding the emphasis on quantity of material content coverage, intensive short courses, and big classes in terms of numbers; and (8) modelling critical thinking by the instructor. It should be noted that this paper does not cover the measurement of critical thinking skills, although it refers to assessments as a method of developing them.

Suggestions for Teaching and Developing Students' Critical Thinking Skills

The first step in teaching critical thinking is to make a commitment to developing students' critical thinking skills, one of the objectives in teaching accounting courses. When instructors make this commitment, the next step is to design strategies to achieve this objective as well as the other objectives. Having an objective is not sufficient. It is very important that teachers understand the concept of critical thinking and the processes involved in developing the skills (Figure 1). Paul (2004), writing about the state of critical thinking, raised several concerns, one of which is that many teachers are unaware that they lack a proper understanding of critical thinking. Further, Paul maintains that lectures, rote learning, memorization, and recall are still the norm in many colleges, leading to a need for change.

Once they understand the concept of critical thinking and have the desire to teach it, instructors must engineer a suitable learning environment founded on basic skills such as *subject knowledge and concepts,* and moving on to *understanding* and *application,* then to more challenging skills of *analysis, synthesis, evaluation, conclusion, inference* and *implication.* The critical thinking skills and reasoning powers of individuals are developed gradually, rather than quickly and effortlessly emerging (Riordan, 1992). As mentioned earlier, a variety of teaching methods are necessary for developing critical thinking skills, but only a few of them are discussed in this paper.

Moving from structured problem solving to less structured situations or uncertain situations and moving from lower order thinking skills to higher order thinking skills are necessary in the process of developing critical thinking. It may be necessary for the accounting instructor to do some survey studies of students to uncover their stages of critical thinking. This will help the instructor to give appropriate assignments or exercises to encourage critical thinking. Starting at a wrong level or a level beyond students' ability to cope may discourage them. The following sections discuss the development of critical thinking skills in accounting classes using a combination of different teaching methods for learning activities inside and outside the classroom (See Figure 2 on following page).

Lecturing and Questioning

It should be emphasized that critical thinking cannot be taught by lecturing, but having said that, lectures can be used to develop students' critical thinking skills. Lectures should be designed to avoid the traditional approach of focusing on acquisition of specific knowledge. Critical thinking involves knowledge, understanding, problem solving, analysis, synthesis, reflection, and evaluation. These are learned by actually performing them. All learning and assessing activities should therefore stress the active intellectual participation by students.

Schafersman (1991) suggested the use of lectures interspersed with thoughtful, searching questions, relevant to the content topic, and that time be given for students to respond. He advises accounting teachers to ask questions that develop comprehension, application, analysis, synthesis and evaluation skills. Secondly, Schalersman suggests that the teacher should not answer the question for the student immediately, but give the student sufficient time to think and form an answer. He further suggests that it is helpful to learn students' names and call individual students by

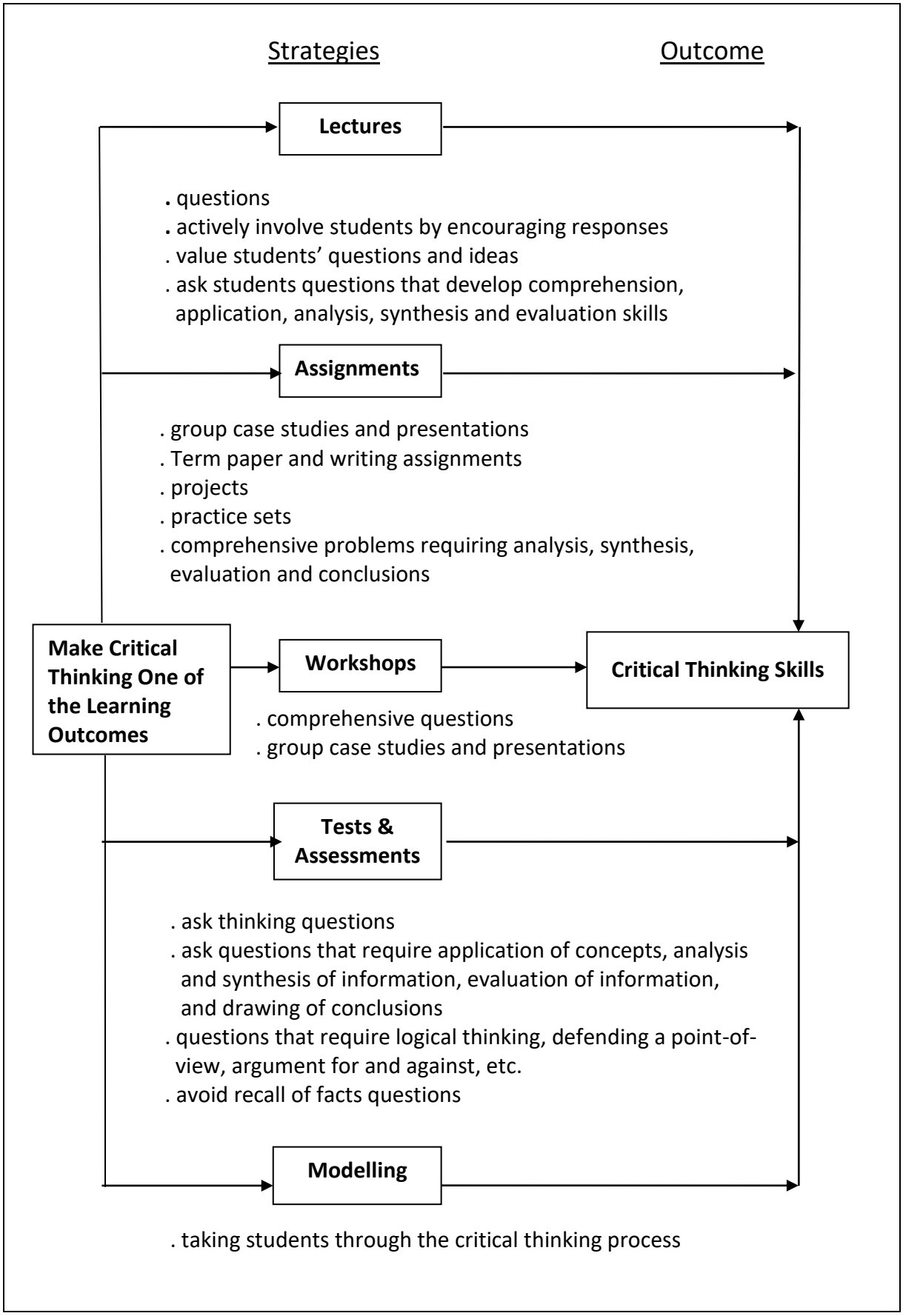

FIGURE 2: Teaching Critical Thinking Using a Combination of Teaching Methods

name. If a student has difficulty answering the question, the teacher can help by simplifying the question and leading the student through the thought processes by asking what data are needed to answer the question. Other steps, he suggests, are to offer suggestions on how the data can be used to answer the question. Then guide the student on how to use the data in an appropriate manner to arrive at a response to the question. According to Schafersman (1991), this will take time at the beginning, but students will soon catch on and be able to respond faster with more practice.

The writers of this paper believe that students should not simply be receivers of information, but that they should be encouraged to participate and interact with the teacher and other students in class about the subject matter. This view is supported by Schafersman (1991) who suggests that students should not be taught to rely heavily on information given by the teacher. He says that teachers should encourage students to think deeply; help them to develop confidence, trust, and value their own ideas and feelings; and teach them to make connections between ideas and concepts. This, according to Schafersman, will help to promote critical thinking.

According to Huston (as cited in Schafersman, 1991), a good way to end a lecture is to ask students to write a response about the lecture that addresses the most significant thing they learned, and one thing that they find confusing or unclear. This is a good way for the instructor to assess what is being taught, and for the student, what is being learned. This exercise also helps to promote critical thinking.

The writers agree with Schafersman (1991) concerning the encouraging of students to ask questions during classes, to create a culture of questioning in lectures. Questions from students mean that they are paying attention and thinking about what the teacher is saying. Our suggestion is that teachers always respond positively to questions and never belittle the student who asked the question, but praise the questioner for asking the question. Teachers should continue encouraging students to question and think in lectures. It is one way of actively engaging students in learning and thinking through lectures.

Haynes and Bailey (2003) emphasize stimulating students' critical thinking by asking the right questions, while Brown and Kelly (1986) and Hemming (2000) suggest integrating questioning techniques into classroom discussions, thus supporting a learning environment in which students can demonstrate and practice these skills.

The writers have found the following methods effective in encouraging students to develop or improve their critical thinking skills.

Workshops

Accounting courses can have workshops connected to them. The writers found workshops to be good places to promote, teach, and develop students' critical thinking skills. The reason is very simple. At workshops, students learn critical thinking skills by practicing them. Students may be given a case, a comprehensive problem, or other critical thinking exercises. At workshops, students are encouraged to work in groups and interact with each other to produce solutions to structured and ill-structured problems. The teacher must make sure that the workshop questions require students to take on a higher level of thinking (comprehending, applying, analysing, synthesizing, and evaluating; see Figure 2. Each group of students should be given opportunities to present the group's solutions to the workshop questions and defend their solutions. Require students in other groups to ask questions, and the presenting group members to answer and defend their problem/ case solutions. This method of teaching critical thinking in accounting classes would seem to be obvious, and it seems odd that not many accounting instructors are using it to promote critical thinking.

Assignments

The writers found assignments can provide good opportunities for accounting instructors to promote critical thinking skills. We found assignments involving both quantitative and non-quantitative activities seem to work well. They can come as major term papers or projects and should involve reading, writing, and solving problems or cases.

Writing forces students to organize their thoughts and think critically about the material they read. Writing assignments may be argumentative, defending a point of view, justifying an action, contrasting and comparing, and so on. For accounting, many problems and cases require students to think quantitatively. The ultimate objective of these exercises is to promote and develop accounting students' ability to think critically, logically, and follow persuasive lines of reasoning. Critical thinking skills can be taught by beginning with knowing and understanding, then moving into application, analysis, synthesis, and evaluation to arrive logically at conclusions. Integrating quantitative and non-quantitative assignments is a useful tool for promoting and developing critical thinking skills for accounting students.

Many textbook publishers provide cases on accounting topics for instructors who are willing to search for them. It may be helpful to keep them in a cases 'bank', to be accessed for future classes. Accounting instructors may also want to write their own comprehensive problems and cases for student activities. Accounting cases and problems may require students to go through the following six steps of analysis and thinking that we found useful in our teaching. These steps include: (1) defining and identifying the main problem(s) by asking what are the facts of the problems; (2) providing alternative solutions to the problem identified; (3) analysing each alternative by critically examining the pros and cons of each; (4) determining the best alternative solution and justifying the selection; (5) providing the steps in implementing the best solution; and (6) evaluating the outcome.

Problem solving assignments, which require critical thinking, and accounting problems, which require quantitative solutions, naturally teach critical thinking to some extent. For example, when students are required to write journal entries, prepare income statements and balance sheets, account receivable analysis, bank reconciliations, and interpretations of financial statements, to mention a few, they are in fact practicing critical thinking, even though they may not realise it. Although this form of activity belongs to a limited subset of critical thinking, it is still important. All accounting courses, from introductory to advanced financial accounting, and from cost accounting to advanced management accounting, involve problem solving of many types and levels of difficulty, which require some form of critical thinking. It should also be recognized that not all accounting exercises giving students the practice of manipulation of numbers alone will lead to critical thinking.

In contrast, teaching accounting using the procedural approach does not promote critical thinking. It encourages students to memorise procedures, which is why accounting instructors should move away from this approach of teaching accounting. On the other hand, problem solving activities result in integration and synthesis of knowledge, thus promoting critical thinking skills (Gurses, Acikyildiz, Dogar, & Sozbiliz, 2007).

Tests and Examinations

Tests and examinations should not simply ask for recall of material facts. They should require students to think and write. For written and quantitative examinations, whether long or short, they should test the ability of students to analyse, synthesise and evaluate information, and to draw conclusions. These kinds of questions can come in various forms such as short accounting cases, long financial and managerial accounting cases, and comprehensive accounting questions. Multiple-choice questions, if properly prepared, can also help to promote critical thinking. Multiple choice questions which require students to explain their choices are also a good way to promote critical thinking skills.

Modelling Critical Thinking

As previously stated, accounting students, and all students for that matter, do not automatically know how to think critically (Davis, Riley, & Fisher, 2003). Students are not born with critical thinking skills. It falls to accounting instructors to model the behaviour (Hemming, 2000). One way of modelling in the classroom setting is to ask students questions and take them through the process of thinking critically as they answer the questions (Snyder & Snyder, 2008). The writers have found that students appreciate these strategies.

Broadbear (2003) suggests that critical thinking activities should be based on four key elements: (1) ill-structured problems; (2) a set of criteria for assessing thinking; (3) assessment of thinking by students; (4) improvement of thinking. Ill-structured exercises can come by way of open questions, case studies or scenarios, and encourage reflective thinking and debate.

The criteria for assessing critical thinking provide a framework for students to think about their thinking; this is the second criteria. The third criteria relates to providing students with individualized feedback based on their responses, and allowing them to address specific criteria upon which they can assess their thinking. According to Lundquist (1999), if teachers model the criteria for assessing critical thinking and provide a framework for doing so, students will apply these techniques on their own. The final element is improvement of thinking. Duplass and Ziedler (2002) posited that by creating a culture of inquiry where students are encouraged to think about their own thinking processes and practice logical constructs, they will become more willing to reconsider and revise their thinking.

At the higher education level, Tempelaar (2006) studied the role of critical thinking in business education programs. He found a positive correlation between critical thinking and course performance. A lot of research focused on collaborative learning activities to develop students' critical thinking skills (Yazici, 2004). Ngai (2007) reported the use of a project-based team approach for e-commerce activity, and found that students gained critical thinking skills based on the practical application of learning by doing and the collaborative effort required by the project. Dudley, Davis and McGrady (2001) also reported students' use of critical thinking skills when accounting students completed a group project involving the hypothetical creation of stock portfolios.

Conclusion

Critical thinking skills development is an important aspect of learning because the 21st century work environment requires employees to be critical thinkers. Therefore it is imperative, as teachers, to equip today's learners with critical thinking competency skills to enhance their chances of successful careers in accounting. A good way of doing this is to view students as users rather than receivers of information, thus actively engaging them in investigative activities and encouraging them to apply knowledge (Snyder & Snyder, 2008).

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