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ABSTRACT

Critical thinking is currently a prominent issue in education. For business educators, four issues must be considered: the meaning of critical thinking, how critical thinking can be introduced into the curriculum, how critical thinking is developed in courses, and how critical thinking can be evaluated. The literature identifies three theoretical thinking models: philosophical, psychological, and educational. Critical thinking can be introduced through the general, infusion, or immersion methods. Critical thinking is best developed in business courses through case studies, group projects, simulations, computer applications, role playing, and other techniques. (Bloom's taxonomy is useful in finding verbs to use for critical thinking applications.) Although these techniques have always been used by business teachers, they should play an increasing role now. Critical thinking can be evaluated though authentic assessment based on a four-step process: clarify reason for assessment, clarify performance to be evaluated, design exercises, and design a performance rating plan. Developing critical thinking skills will enhance the learning process. (An appendix includes sample verbs for Bloom's taxonomy, suggestions for applying Bloom's taxonomy to a unit on paychecks, and an evaluation sheet for a case study.) (KC)

CRITICAL THINKING IN BUSINESS EDUCATION

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CRITICAL THINKING IN BUSINESS EDUCATION

Critical thinking is one of the latest buzz words in education. The demand for workers who can think critically is coming from business, and all areas of education are focusing on ways to better prepare students.

For business educators this is not a new issue. We have always been concerned about preparing workers for business. Nevertheless, it is necessary to look at this issue to determine whether there are changes we need to make in our classrooms. In doing so, there are essentially four questions that are important.

1. What does it mean to think critically?
2. How do we introduce critical thinking in the curriculum?
3. How do we develop critical thinking in our courses?
4. How do we evaluate critical thinking?

These four questions are addressed below.

WHAT DOES IT MEAN TO THINK CRITICALLY?

A definition of critical thinking and the best way to teach it or its components are not generally agreed upon. Some believe critical thinking includes a broad range of skills. Others approach it in a process context. Still others equate it with the upper levels of Blooms' (1956) taxonomy. (*See the Appendix for a list of descriptive words at each of the levels).* Likewise, viewpoints on how to apply the concept in the classroom varies from the teaching of isolated processes to integration with subject matter for the purpose of helping students to learn.

The business educator's goal is specific. We strive to prepare students for the work force who are equipped to engage in work immediately and independently *and* do it in a timely manner. Consequently, to develop effective programs that will prepare students for the workforce, business educators must develop their *own* definition of critical thinking. In doing so, we must be aware of the origins of our potential definition.

The literature identifies basically three theoretical approaches for viewing critical thinking: philosophical, psychological, and educational. Briefly, these are described below.

Philosophical Model

The essential element of critical thinking in the philosophical model is the ability to see things from others' points of view. A teacher who uses the philosophical model wants students to process subject matter critically and analytically so that they can integrate it into their own thinking--rejecting, accepting, or qualifying it in keeping with their own perceptions and understandings. There are educational programs for schools (available commercially) that are written by authors who believe in the philosophical model.

Psychological Model

The psychological approach tends to place the reasoning skills proposed by philosophers within the context of a thinking *process*, and, with respect to education, how that process develops as children grow. Dimensions of thinking identified may be: metacognition (being aware of *how* we think), cognitive processes (including problem solving and decision making), core thinking skills (including summarizing and elaborating), critical thinking, creative thinking, and the role of content knowledge in facilitating thinking. There are also educational programs (commercially available) written by authors who believe that the psychological model is the correct basis for teaching critical thinking skills.

Educational Models

An educational model is a hybrid model which combines *elements* of the philosophical and psychological models. The educational model proposes classes of tasks and methods of inquiry such as the hierarchy referred to as Bloom's taxonomy. Most educational theorists (and there are others besides Bloom) draw heavily on classroom observation, analysis of text, and analysis of thinking in the classroom.

Essentially, an educational model attempts to put theory into practice in the classroom. In doing so, the components of the philosophical and psychological models are utilized in some combined format. One of the criticism of educational models is that the philosophical and psychological components are not clearly identified or defined.

The SCANS report (U. S. Department of Labor, 1991) describes critical thinking as an umbrella that encompasses all rational intellectual skills: thinking creatively, making decisions, solving problems, seeing things in the mind's eye, knowing how to learn, and reasoning. In defining a model for business education, we should reflect the definition of critical thinking embraced by the business community. Doing so enables us to utilize an eclectic approach, selecting those elements that seem most appropriate for our area of specialization.

HOW DO WE INTRODUCE CRITICAL THINKING IN THE CURRICULUM?

In addition to the theoretical foundation above, there are three generally accepted ways of introducing critical thinking into the curriculum: the general, infusion, or immersion methods.

The General Method

Those that believe that critical thinking can be taught as a separate course in the curriculum outside of the specific content areas support the general method of teaching critical thinking. The focus is attempting to teach the basic cognitive processes used in everyday life in the school setting, but in a separate course.

The Infusion Method

Those that believe that critical thinking should be taught within the context of subject matter believe in the infusion method. Recent research shows that when general principles of reasoning are taught together with self-monitoring practices and potential application in varied context, transfer often is obtained. Identifying components of critical thinking, factors of learning styles, strategies, and the like are characteristic of the infusion r. ethod.

The Immersion Method

Those that believe that critical thinking is taught through intense content engagement in which general critical thinking skills principles are ***not*** made explicit are supporters of the immersion method. Recent research shows strong interactions between structures of knowledge and cognitive processes. This does not mean that you would not use some of the processes involved in the infusion method, but rather that the focus would be on the knowledge content/process interaction.

Summary

In considering the origins of thinking about critical thinking, one can readily see the difficulties in determining a single definition or model of critical thinking in business education. For the purpose of this presentation, the definition of critical thinking is limited in two ways:

1. Using the upper levels of Bloom's taxonomy for guidance in selecting descriptors of critical thinking: synthesizing, analyzing, and evaluating. The taxonomy helps to focus teacher attention on the degree to which the tasks they design require students to think critically. (*See Bloom's taxonomy with descriptive examples appropriate at each level in the Appendix*).

2. Selecting activities that simulate "authentic" business contexts.

HOW DO WE DEVELOP CRITICAL THINKING IN OUR COURSES?

At the Delta Pi Epsilon Research Conference in 1992, examples of teaching critical thinking/problem solving in business education classes were sought. Case studies, group projects, simulations, computer applications, and role playing were identified as possibilities. In-basket exercises, employment portfolios, cooperative learning, and others could also be added. None of these techniques are new to business educators. What may be new is the *degree* to which they should be used. If we embrace the notion that students learn by doing, we should we using these techniques frequently.

In planning instruction, utilizing activities that invoke higher levels of thinking is important, as is thinking through the integration of subject matter with activities. As one theorist puts it, "You can't teach thinking unless you have something to think about."

Perhaps the best way to understand what it means to integrate critical thinking with the subject matter is inclusion of a "before" lesson plan that does not include critical thinking skill and an "after" lesson plan that does.

Before: Present components of a resume. Have students write a resume for the job search process.

After: In groups, determine the types of information employers want to know about an applicant. Share with class and make a master list. Provide examples and evaluate whether the information employers want is provided. In groups discuss the effectiveness of another sample. Present evaluation to class. Now students are ready to write their own resumes. In groups, students critique the individual resumes, using the master list above as criteria. Student rewrites and submits the resume for formal feedback.

Examples of activities that encourage the development of critical thinking follow. However, you are limited only by your own imagination and creativity--*and your own critical thinking!*

Examples

1. After studying direct and indirect plans for writing a business letter, present authentic situations. Students determine correct approach to apply and provide rationale for decision.

2. Provide sample letters in response to situations. Students select most appropriate letter and defend their choices.

3. Present cases studies based on computer applications. Select the appropriate application or function. Determine if there are ways to streamline a solution. Use peer evaluation, as well as self evaluation.

4. In word processing, once the "merge" concept has been introduced and executed, ask students to determine what factors would be considered in making a decision about "when" to use the merge process. In addition, ask students to determine criteria for evaluation. Ask, "What will the employer be concerned about when evaluating the work done?"

5. Assume the role of a supervisor in a word processing center. Apply the criteria determined above to another student's work and then to the student's own work.

HOW DO WE EVALUATE CRITICAL THINKING?

As with anything we teach in the classroom, there must be a method for evaluating outcomes. A review of the literature reflects disenchantment with standardized tests as *the* accepted measure of achievement. Data from norm-referenced multiple-choice tests compare students to one another and emphasize skills out of context.

When considering the evaluation of critical thinking skills, authentic assessment provides a viable alternative to objective tests. Critical thinking skills evaluated in the context of authentic activities must be our goal because business educators prepare students for the work world.

Effective evaluation should be based on well designed activities and defined learning outcomes. A four-step process for designing authentic assessment by Stiggins (1987) is:

Step 1:	**Clarify Reason for Assessment.** What decision(s) will be made? Who are the decision makers? What use will be made of the results? Who will be assessed?
Step 2:	**Clarify Performance to be Evaluated.** What is the content or skill focus? Based on what process? What is the performance criteria?
Step 3:	**Design Exercises.** What will be the form of exercise? Will it be announced or not? How often will it be administered?
Step 4:	**Design Performance Rating Plan.** What process will be used to evaluate? Who will do it? How will it be executed?

As an example of how this is applied to a case study situation, assume that you have introduced case studies to your students, have modeled the analysis and evaluation applying a problem solving method, and have demonstrated how you will evaluate their performance. The *Case evaluation form* in the Appendix can be used to arrive at a score indicating mastery of the problem solving process.

CONCLUSION

The important consideration in the development of critical thinking skills is not whether *one* definition or *one* model is accepted, but rather *which parts* of the models and/or which methods business educators can use in business classes of varying levels and content. Developing critical thinking activities will enhance the learning process. As a bonus, teachers report that when students are actively involved--doing their share in the learning process--the teacher are less tired at the end of the day.

The bottom line for the business world is, "Can you deliver cost-effective workers who can produce work in a timely manner?" The challenge for us is to produce these workers, which includes building a bridge from school activities that develop critical thinking to demonstrating critical thinking in the individual's work related situation. The end result will be the enrichment of the learning environment for students, as well as for business educators.

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APPENDIX

SAMPLE VERBS FOR BLOOM'S TAXONOMY

Highest

↑	**Evaluation**			
	appraise	choose	decide	rank
	evaluate	support	prioritize	select
	compare	criticize	judge	rate
↑	**Synthesis**			
	arrange	assemble	compose	plan
	reorganize	revise	suggest	create
	integrate	manage	prescribe	design
↑	**Analysis**			
	analyze	appraise	calculate	test
	categorize	compare	contrast	debate
	dissect	diagnose	differentiate	try
↓	**Application**			
	apply	calculate	demonstrate	use
	solve	practice	illustrate	show
	construct	conclude	examine	make
↓	**Comprehension**			
	compute	describe	discuss	tell
	explain	express	identify	review
	report	locate	trace	restate
↓	**Knowledge**			
	define	identify	label	list
	locate	match	memorize	name
	recall	spell	state	tell
	underline	fill in blank	count	draw

Lowest

APPLYING BLOOM'S TAXONOMY TO A UNIT ON PAYCHECKS

Following are examples of activities at each level of Bloom's Taxonomy. As you are designing your instruction, try to incorporate activities at the higher levels.

Knowledge

- Define terms such as paycheck; gross pay, deduction; net pay, FICA taxes; state, federal and local taxes; W-4; W-2.
- Identify terms relating to employer's payroll expenses: unemployment taxes, matching FICA taxes, workman's compensation.
- Identify tangible/intangible benefits: sick leave, disability, health insurance, life insurance, dental/eye care insurance, prescription insurance, vacation, personal leave
- Identify optional employee choices: savings bonds, United Way, Christmas Club, company stock

Comprehension

- Given the terms defined above, identify the following terms on a paycheck: (list selected items).

Application

- Calculate the taxes deducted from your paycheck. Calculate the employer's payroll expenses for your paycheck.

Analysis

- Differentiate between intangible and tangible amounts of the employer's payroll expenses.

Synthesis

- Predict the effect on your net pay when there are personal changes such as marital status or addition of children.

Evaluation

- The union negotiations has resulted in an option to select health care benefits with dental/eye care coverage and a 3 percent salary raise OR health care benefits without dental/eye care coverage and 6 percent salary raise. Select and defend your choice.

EVALUATION OF A CASE STUDY

Choices for each category:

4 Identification and description/evaluation both clearly provided

3 Identification and description/evaluation provided, but one is not clear

2 Identification and description/evaluation provided, but both are not clear

1 Identification is provided, but description is not included

0 Identification is not provided

Facts Identified and Described	4	3	2	1	0
Problem Statement Identified and Described	4	3	2	1	0
Alternatives Identified and Evaluated	4	3	2	1	0
Solutions Identified and Described	4	3	2	1	0
Rationale Identified and Described	4	3	2	1	0

Comments by Student

_____

_____

Comments by Peer Evaluator

_____

_____

Comments by Teacher

_____

_____

Your strengths and weaknesses are:

_____

_____

Date:_____Case No._____