



A PILOT STUDY FOR ASSURING THINKING SKILLS LEARNING IN THE BBA CURRICULUM

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Peer Reviewed

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Abstract

Institutions of higher learning face an increasing need to demonstrate to their stakeholders—students, employers, taxpayers, and accrediting agencies—that they provide value by providing assessment measures to assure that students are learning. For business schools, the ability to analyze and solve problems is a critical learning goal. Therefore, business schools must develop and maintain an assessment program that includes assessment of thinking skills. This paper explores how one school of business planned and implemented such a program.

Introduction

The purpose of this paper is to show how one school of business, hereafter referred to the School, tackled the issue of critical thinking skills assessment. The School is one of five schools in a medium-sized four-year university located in Georgia. The university is a technology-focused, commuter university with a very diverse student population. It has approximately 6000 students, 950 of which are enrolled in the School of Business, and more than 50 percent of the students work full-time. The School offers a BBA program with majors in

accounting, general business, management, and marketing. Currently, the School has 21 full-time faculty and two administrators—the Dean and Associate Dean. Over the past five years, the School has, as part of a revamped and streamlined mission, implemented an assessment program. Both were parts of a complete reinvention process that led to AACSB accreditation.

Institutions of higher learning face an increasing need to demonstrate to their stakeholders—students, employers, taxpayers, and accrediting agencies—that they provide value [Terenzini, 1989; Kimmell, Marquette, & Olsen, 1998]. In addition to showing a commitment to retention and student success, stakeholders are asking colleges and universities to provide measures of assurance of learning. At the same time, organizations that accredit academic institutions, such as the Southern Association of Colleges and Schools (SACS) and the Association to Advance Collegiate Schools of Business (AACSB) International [AACSB, 2004; Fraser, et. al., 2005] are also requiring assessment data. Assessment is a critical component of the accreditation process and can be a significant factor when determining which institutions deserve accreditation and which do not [Palomba & Banta, 2001].

The fulcrum of the assessment process at the School has been the following six learning outcomes:

1. **Written and Oral Communication Skills:** writing clearly, concisely, and correctly; planning, designing, and delivering persuasive oral presentations;
2. **Ethical and Corporate Social Responsibility:** assessing the ethical and social impact of decisions on the organization and its stakeholders;
3. **Thinking Skills:** thinking critically and analytically to evaluate organizational effectiveness, to make decisions, and to develop strategy.
4. **Interpersonal Skills and Appreciation for Diversity:** using interpersonal and cross-cultural knowledge and skills to lead and manage collaborative activities and to work effectively in teams that have a diverse membership;
5. **Knowledge of the Business Environment:** understanding how business disciplines integrate to compete successfully in the global business environment;
6. **Use of Technology in Business:** using computers to analyze data and solve problems, and to communicate.

The faculty members at this school believe that each of these areas is crucial to success in the business world. A key component of the assessment of these learning outcomes is assessing thinking skills.

Developing an Assessment Process for Thinking Skills

A Plan to Assess Thinking Skills

The first issue in developing a plan to assess thinking skills is to define thinking skills. The most common way is to use Bloom's Taxonomy [Cotton, 1991], which categorizes the level of cognitive ability. The taxonomy is hierarchical—lower level skills generally need to be mastered before higher-level skills [adapted from Krumme, 2005]:

1. **Knowledge** of terminology; specific facts;
2. **Comprehension**: Understanding the meaning of informational materials;
3. **Application**: The use of previously learned information in new and concrete situations to solve problems;
4. **Analysis**: The breaking down of informational materials into their component parts, making inferences, and/or finding evidence to support generalizations;
5. **Synthesis**: Applying prior knowledge and skills to produce a new or original whole;
6. **Evaluation**: Judging the value of material.

One way to look at thinking skills is in terms of the higher-order levels of cognition: analysis, synthesis, and evaluation. This approach presupposes that to analyze, synthesize and evaluate, a student must use knowledge gained in the curriculum.

However, another school of thought looks at the elements of critical thinking as discrete and separately testable. For example, suppose there is a test question designed to get students to apply knowledge to a new example. If the student misses the question, what was it that the student could not do? Did they lack the knowledge or are they incapable of applying existing knowledge to new situations? Standardized tests (such as the California Critical Thinking Skills Test, the Cornell Z, and the Watson Glaser noted in Williams, Wise and West, 2001) attempt to measure critical thinking components as separate from knowledge.

The argument concerns responsibility for thinking skills assessment and the wording of the mission and learning outcomes. Should the faculty who know the material and know when there are mistakes in the use of that material be responsible? Or should an outsider who can be more impartial and will be more concerned with the actual thinking process be responsible? Since our mission and learning outcomes emphasize analysis and evaluation to make effective decisions, we used assessments where students needed to use existing knowledge in addition to higher-order cognitive skills. This also meant that faculty conducted the assessment, rather than outsiders.

Methods for Constructing Assessments

The second issue in developing a plan to assess thinking skills is to determine the methods for constructing assessments. Many business schools are in the early stage of implementing assurance of learning and have focused their initial efforts on developing learning outcomes and reviewing the curriculum. (See the report by Northridge as an example.)

Based on an online search of current practice on thinking skills assessment, there are three different methods commonly used for constructing assessments. As mentioned previously, one method involves constructing a rubric based on existing definitions of acceptable performance. For example, Washington State University spent two years developing a rubric to identify the elements of critical thinking (<http://wsuctproject.wsu.edu/ctr.htm>).

Another method for constructing an assessment process involves using the work of students on current assignments. For most assignments, a few papers stand out. Of these, the instructor can determine what it is that makes the paper exceptional and use this as the basis for gathering assessment data. This may sound backwards given that assessment should be driven by the goals of the course (http://www.flaguide.org/start/assess_intro.php). Nevertheless, this method can be used to help identify which elements of complex processes, such as critical thinking, are most important for meeting the school's mission and objectives. For example, in an existing PowerPoint assignment for Principles of Macroeconomics, the instructor has noticed that the best assignments show clear connections between variables. In addition, this method can be useful for assessing assignments created by other instructors.

The third method involves using existing instruments. The ETS Major Fields Exam is an instrument designed to test "walking-around knowledge" in business. Since the School expects all graduates to have a basic understanding of fundamentals, this exam is an exit test in the capstone class. Similarly, thinking skills instruments exist (as noted above), but are not in common use among business schools.

Each of these methods has drawbacks. The first method is time consuming and can result in a rubric that is unwieldy. It can be difficult to assess consistently using a rubric. To provide reliable valid results, assessors need training. The second method is difficult to use in multi-section courses taught by different faculty members. Common assignments can be difficult to implement when faculty teaching styles vary greatly (as is the case with the School's two primary instructors in economics). The third method involves additional expense, either for the school or for the students. At the School, students in the capstone class pay for the exit exam. Students are of course, unhappy with the additional expense, but the School does not have the resources to pay for all of the students to take the test.

At this time, to minimize expense and to focus on those elements of critical thinking emphasized in the learning outcomes, the School is using a combination of the first and second methods to assess thinking skills. The Assessment Coordinator drew up an initial set of standards drawn from web-based sources. (See <http://www.csufresno.edu/cetl/assessment/assmnt.html> for an example.)

As was previously indicated, using this combination led to a lengthy rubric that was difficult to implement with existing resources. (The rubric is shown in Appendix 1.) There were so many elements to consider that finding appropriate assignments and getting faculty to cooperate would have been a problem. Therefore, the coordinator piloted an initial run using a project from Principles of Macroeconomics to see which elements appeared most important.

In addition, the coordinator met with individual faculty members who were teaching courses with strong analytical components. The faculty members used the initial rubric to

choose a few elements that they believed best represented the thinking skills needed for success in the business world and in their courses. (Many of the School's faculty members have business experience.) The pared down version of the rubric is shown as Appendix 2.

Curriculum Considerations

To ensure that students have a chance to develop their ability to critically analyze and evaluate information, the school requires that students take certain courses that emphasize thinking skills; that students take these courses in a defined sequence; and that upper-level courses require some form of application, analysis, and /or evaluation.

In particular, the following courses in the curriculum emphasize thinking skills:

Table 1: Thinking Skills in the Curriculum

Stage	Courses	How Addressed
Freshman	CRIT 1101 Critical Thinking (University general education req)	Introduction to logic and critical thinki
Sophomore	ACCT 2101 Principles of Financial Accounting	Analysis of financial statements
	ACCT 2102 Principles of Managerial Accounting	Analysis of cost data for managerial decision making
	ECON 2105 Principles of Macroeconomics	Analysis of real-world scenarios and economic policy
	ECON 2106 Principles of Microeconomics	Analysis of real-world scenarios
Junior	BUSA 3101 Business Statistics	Analysis of financial statements
	FINA 3101 Managerial Finance	Problem-based analysis of financial decisions
	MGMT 3120 Managerial Communication	Application of concepts to real-life problems
	MKTG 3420 Global Business	SWOT Analysis of companies
Senior	MGMT 4750 Strategic Management	Evaluation of company needs plus integration of concepts from all the business disciplines
	Plus major-specific upper-division courses	

All students in the BBA program must take these courses. Sophomore courses are prerequisites for the junior courses and the junior courses are prerequisites for Strategic Management, which is the capstone class.

Piloting Assessment of Thinking Skills

As a pilot run for the updated rubric the coordinator selected assignments from one section of each of three business courses: Principles of Macroeconomics (ECON 2105), Global Business (MKTG 3420), and Marketing Management (MKTG 4750, the capstone course for Marketing majors). The coordinator selected the courses based on their level and the availability of assignments where students had a chance to demonstrate the critical thinking elements selected by the faculty. The coordinator did not choose the capstone class, the only senior-level course required for all students, due to the number of standardized assessments already in use in that course.

Students in the ECON 2105 course used the PowerPoint DrawTool to show how fiscal and monetary policy to correct a recessionary gap affected major macro variable (GDP, CPI, interest rates, and the value of the dollar). Students in the MKTG courses did a SWOT analysis of companies described in case studies.

Table 2 contains the results from the three classes. (Note that U=unsatisfactory, S=satisfactory and G=good. See Appendix 2 for explanations.) It is difficult to compare the three assignments, since the Principles of Macroeconomics assignment was more focused and the elements that were assessed were more explicitly included in the directions than for the two marketing assignments.

Highlighting some of the results:

- 97 percent S + G for presentation skills in ECON 2105: Each semester a member of the University's technology support team gives a workshop on using the PowerPoint Draw Tool to draw graphs in this particular instructor's ECON 2105 courses. All but one student in the fall completed an electronic version using the software to draw the graphs.
- 58 percent S + G for Integrating Skills in MKTG 3420: To assess this (for both MKTG courses) the coordinator looked for evidence that the student had brought information from other sources into the analysis. This was not explicitly part of the assignment, although the better papers were more likely to have made these connections.
- The small proportion of students in the good category under presentation skills at the Junior and Senior levels reflects the number of students who failed to use an adequate layout for their paper. Many students failed to use bullets and category headings in an aesthetically pleasing way. There was a marked overuse of bulleted lists, rather than attempting to tie the pieces of the analysis together in a cohesive paragraph.
- The overall scores as well as the proportion in the good category increased for virtually every category from the junior to the senior level. The only student in MKTG 4750 who did not do an adequate job on some of the questions was still in the middle of completing the junior core (specifically MGMT 3120 Managerial Communications). This is an indicator that the curriculum is doing a good job of giving students a chance to develop thinking skills.

Table 2: Assessment Results from the Pilot of Thinking Skills

Assessment Results: Thinking Skills Assessment ECON 2105 (N=36)

Performance Elements	%U	%S	%G	%S+%G
Focusing Skills				
Defining the problem	17%	33%	50%	83%
Information Gathering Skills				
Using appropriate information	-	-	-	-
Analyzing Skills				
Identifying relationships	0%	6%	94%	100%
Integrating Skills				
Makes connections	-	-	-	-
Generating Skills				
Makes inferences	-	-	-	-
Presentation				
Uses software in an appropriate manner (PPT)	3%	64%	33%	97%

Assessment Results: Thinking Skills Assessment MKTG 3420 (N=12)

Performance Elements	%U	%S	%G	%S+%G
Focusing Skills				
Defining the problem	-	-	-	-
Information Gathering Skills				
Using appropriate information	0%	33%	67%	100%
Analyzing Skills				
Identifying relationships	17%	25%	58%	83%
Integrating Skills				
Makes connections	42%	25%	33%	58%
Generating Skills				
Makes inferences	18%	55%	27%	82%
Presentation				
Uses software in an appropriate manner (Word)	27%	55%	18%	73%

Assessment Results: Thinking Skills Assessment MKTG 4750 (N = 10)

Performance Elements	%U	%S	%G	%S+%G
Focusing Skills				
Defining the problem	0%	30%	70%	100%
Information Gathering Skills				
Using appropriate information	0%	40%	60%	100%
Analyzing Skills				
Identifying relationships	10%	30%	60%	90%
Integrating Skills				
Makes connections	0%	30%	70%	100%
Generating Skills				
Makes inferences	10%	20%	70%	90%
Presentation				
Uses software in an appropriate manner (Word)	20%	50%	30%	80%

The highlights do indicate that the School's graduates do possess many of the thinking skills they need to be successful in business careers, and that the curriculum does appear to be giving students a chance to develop these skills.

Lessons Learned

This paper reviews a process for implementing thinking skills assessment in the school of business at a medium-sized university. Part of the assessment process is to complete the loop—use the assessment results to make improvements.

The initial round of improvement is for the assessment process itself. The process proved too complicated and time-consuming to be done on a regular basis. Rather than attempt to collect assignments from several different classes, thinking skills assessment will now be done only in the Global Business class, which is required for all graduates. Because the primary instructor for Global Business is the new coordinator, data collection will be simplified and any changes that need to be made to assignments used for assessment.

The rubric used for the assessment has also been changed to a much simpler holistic rubric (available online at <http://www.insightassessment.com/HCTSR.html>). This reduces the amount of time spent assessing assignments while still giving useful results.

As for the results themselves, the instructor should provide students a copy of the rubric to show how the assignment will be assessed. This will insure that the results fairly reflect what the students are capable of. Once the updated results are available, the assessment committee will look for specific ways to improve the proportion of students in the good column for the elements that still appear to need work.

Those thinking skills elements that need work will require the faculty to come up with ways to help students develop and hone their skills. This will require that time in class be taken away from content. For example, in the Principles of Macroeconomics courses students are given chances in class to solve a problem requiring that they not only be able to appropriately draw supply and demand graphs, but also use what they have learned to determine the impact of an exogenous change on the equilibrium. As a result, they are more likely to be able to apply the supply and demand model to new situations.

Another possibility is to use out-of-class assignments to help students improve. Currently one area of concern at the School, career planning [May, 2005], is being addressed with outside assignments and interviews with the School's advisors as part of the Managerial Communications course. Still, the module does require some in-class time.

Thinking skills assessment is not an easy process to implement or continue. The positive side is that Schools of Business can better prepare students for careers and may be able to use the process to better market programs and courses. Thinking skills assessment may help alleviate the double whammy of shrinking public support and increasing public scrutiny for the institution willing to take on the challenge.

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Note: Title graphic designed by Carole E. Scott

