Assessing Critical Thinking: A College’s Journey and Lessons Learned

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ABSTRACT. The business college at University of West Florida is currently in the throes of implementing an assessment initiative to develop student learning outcomes, design assessment devices to measure learning, analyze the measurement results to identify learning shortfalls, and establish feedback mechanisms to modify the curriculum to address the shortfalls. The authors reflected on the current state of the process, including initial findings and corrective actions taken, and compared the lessons learned about assessing critical thinking and assessment in general with results found in the literature.

Keywords: assessment, critical thinking, student learning outcomes

The increasing emphasis on outcomes assessment by accrediting agencies led faculty and administrators at the University of West Florida’s college of business, which is accredited by the Association to Advance Collegiate Schools of Business (AACSB), to develop a learning outcome and assessment of critical thinking. Critical thinking is recognized as an important, but difficult, ability to assess. The two initial assessments have led to several interventions to improve the capstone business course and the business curriculum. We compared lessons learned with previous studies to add to the body of knowledge about assessment.

Establishing an Assessment Culture

Researchers, who study organizational change, have consistently found that people inherently resist change (Armenakis, Harris, & Moss holder, 1993; Hannan & Freeman, 1984; Piderit, 2000). Similarly, faculty and administrators at universities resist change because they tend to perceive it as a threat to the existing culture and status quo. Educators have always recognized the necessity for measuring student learning. Traditionally, this meant that individual faculty members developed assessment devices and grading systems. They often equated and resisted attempts by administrators to implement external assessments of student learning to assessments of teacher effectiveness because they are intensely protective about forced changes both in the way that they teach and the way that they are evaluated.

Traditionally, members of accrediting bodies focused primarily on input measures; they based the institution’s reputation and accreditation on measures such as the faculty-student ratio, number of faculty with terminal degrees, library size, and endowments (Mundhenk, 2005). Since the mid-1980s, however, the pressures from external stakeholders for more public accountability and more easily understandable demonstrations of learning have steadily increased, (Banta, 2001). As the concern of external stakeholders increased, substantive pressure for change came from influential sources such as the U.S. Department of Education when it required accrediting bodies to collect information about learning (Palomba & Banta, 1999). By 2005, “both accreditation agencies and institutions [had seen] the assessment of student learning as a much more significant part of the process of determining institutional quality through accreditation” (Mundhenk, p. 31). The shift in emphasis on accrediting criteria caused a corresponding shift in actions by the University of West Florida to maintain accreditation.

In addition to the institutional pressure to change, the business college of
University of West Florida faced another challenge as the AACSB (2003) shifted the emphasis of its accrediting criteria to include assessment. It was clear that to maintain AACSB accreditation, both faculty and administrators had to get involved in the process.

Achieving faculty buy-in was accomplished in several ways. First, a series of information sessions made it clear that developing output measures to assess student learning was mandatory to maintain accreditation. Second, administrators were responsible for providing support but the faculty was responsible for developing the learning outcomes and assessment measures. Third, assessment results that identified learning shortfalls would be treated as curriculum issues, not teaching deficiencies.

An aggressive and supportive leadership of the administrators and key faculty members successfully created a culture of change. Descriptions of how the environment had changed convinced the affected constituencies that change was a requirement, and concerns were addressed.

Evolution of Critical Thinking Assessment

In 2003, AACSB adopted a new set of standards for accreditation and maintenance of accreditation. On the basis of the new standards, administrators at the business college of the University of West Florida devised a list of five overarching business college learning outcomes: (a) critical thinking, (b) communication, (c) ethics, (d) project management, and (e) domain knowledge. To develop an assessment of critical thinking, the college faculty had to define critical thinking. Although researchers have attempted to define critical thinking, there is no generally-accepted instrument to assess critical thinking; it is incumbent on faculty to develop their own instrument (Wolcott, 2005).

For extensive coverage of this topic the reader can refer to Bloom (1956), Guillemette (1991), Dalal (1994), Jenkins (1998), and Kurfiss, (1988). After many rounds of discussion between faculty and administrators, members of the business college developed the learning outcomes that comprised business critical thinking (see Appendix A).

The business college administrators and faculty elected to use a summative approach (Maki, 2004) and designated the capstone policy course to assess critical thinking. The rationale was twofold. First, the faculty wanted to assess the total college experience, and all majors in the Bachelor of Science in Business Administration (BSBA). Degree program were required to take Business Policy as the capstone course. Second, the faculty typically offered this course in the last semester before graduation. Students typically took the course in the last semester before graduation and an assessment at this time would most accurately reflect the entire business college educational experience.

Kurfiss (1988) contended that critical thinking was required for solving unstructured problems that had no single correct answer. This is precisely what is entailed in a case analysis. A major pedagogical tool of the capstone course is a series of case analyses where students prepare an analysis outside of class and then participate in a classroom discussion of their case analysis. The weekly case analyses involve an analytical model typical for policy courses (see Appendix B). Through the sharing of differing viewpoints in class discussions, students gain an understanding of the proper application of course and general business concepts.

The capstone case analysis series culminates in an individual written assignment. The written case is intended to be a rigorous demonstration by students of their level of understanding of, and their ability to apply, both course and general business curriculum concepts.

In Spring 2005, the capstone faculty implemented a program to assess the critical thinking ability of students in all sections of the capstone policy course. The first rubric developed was centered on grade-related anchors (see Appendix C). After the Spring 2005 assessment cycle, the capstone faculty met to evaluate the assessment process and assessment results. The redesigned rubric used in Spring 2006 is illustrated in Appendix D.

Closing the Loop: Assessment-Based Interventions

One of the consistent themes in the literature is assessment without corrective action is an empty gesture. The business faculty has agreed on a set of learning outcomes, but is still in the initial stages of developing and fine tuning both the assessment measures and interventions based on the assessment findings.

RESULTS

Spring 2005 Results and Interventions

In spring 2005, a total of 122 students completed an individual written case analysis and were assessed on the basis of the rubric (see Appendix C). We found that approximately 28% of the participants’ performance was exemplary, 62% performed acceptably, and 10% performed unacceptably for this learning outcome. An extensive review of the assessment process led to several conclusions: (a) using the rubric took significantly longer to grade the assignment, (b) there were minor disparities between the instructors in applying the rubric, and (c) students were not effectively applying the analytical model. As a result, the capstone faculty modified the rubric and developed standardized questions to help students apply the analytical model.

The primary finding about assessing critical thinking was that the students were very weak in financial ratio analysis. This adversely affected their ability to integrate financial considerations with other discipline issues such as marketing or production. The capstone faculty reviewed the assessment results and suggested two interventions. First, the capstone faculty’s review of financial analysis was strengthened. Second, it was recommended the overall business curriculum be reviewed to ascertain if adequate and effective attention was being given to relatively basic financial analysis. The college dean shared the assessment findings with the accounting and finance department, and asked the accounting and finance chair to meet with the capstone faculty to identify the specific accounting- and finance-related weaknesses.

The accounting and finance chair then discussed the assessment findings with faculty who taught the relevant prerequisite courses. After a series of discussions, the faculty of the two prerequisite
courses agreed to improve coverage on the identified topics and to coordinate topic coverage across instructors. In addition, a financial case analysis specifically aimed at ratio analysis was introduced in homework assignments.

**Spring 2006 Results and Interventions**

In spring 2006, the business administrators and faculty assessed critical thinking for the second time with an individual written case analysis using the rubric in Appendix D. This rubric corresponded more closely to the learning outcomes in Appendix A, and was expected to ease the assessment burden.

The first objective was to assess student ability to identify problems, select and apply appropriate problem-solving techniques, and make appropriate recommendations. This corresponded to the first learning outcome in Appendix A. A total of 132 students were assessed on the basis of their individual written case analyses. The results indicated that 58% of the students exhibited exemplary performance, 34% performed acceptably, and 8% performed unacceptably on this learning outcome.

The second objective was to assess student ability to integrate knowledge across business disciplines (learning outcome 2 in Appendix A). Out of the 132 students assessed, 32% showed exemplary performance, 57% performed acceptably, and 11% performed unacceptably on this learning outcome. The capstone faculty met to evaluate the mechanics of the assessment process and the results of the assessment.

**DISCUSSION**

**Changes to the Assessment Process**

Regarding the spring 2006 assessment process mechanics, the members of the assessment team agreed that the new rubric was not only easy to apply, but appeared to better tap the constructs being assessed; the use of two learning outcome measures more accurately captured student performance levels than prior assessment methods. Although grading time was reduced, it did not appear that further modification of the rubric would be effective in reducing the assessment time. The conclusion was that capturing critical thinking was a more time-intensive task than determining an overall score. Faculty standardization in applying the rubric was satisfactory.

**Interventions in the Business Curriculum**

The spring 2006 assessment results indicated some improvement in the calculation of ratios and ratio analysis. However, it was not clear whether the improvement was a result of the intervention in the course prerequisites or the intensive review in the capstone course. It was difficult to draw a reliable conclusion because not all of the students assessed in the spring 2006 capstone course were exposed to the revised curriculum. The assessment team’s recommendation to accounting and finance faculty was to continue with the increased emphasis on ratio analysis. In addition, the capstone faculty planned to develop a diagnostic instrument to assess the skill level in financial analysis of the incoming students.

Another finding of the spring 2006 assessment was that students had difficulty seeing the interrelationships among the functional areas, emphasizing instead the importance of the functional area of their own major. In other words, students focused on the issues of the case from the perspective of one function but had difficulty seeing the interconnected nature of the business functions. The capstone faculty concluded that concept integration across disciplines was one of the differentiating aspects of the capstone course and would remain the most difficult learning outcome pertaining to critical thinking.

The planned intervention was twofold. First, increase the emphasis during case analysis in class emphasizing to the students about how decisions in one functional area of business affected performance in other areas. Second, one of the pedagogical tools used in the course is a total enterprise simulation, and it naturally supports efforts to emphasize the interconnected nature of business decisions. During simulation discussions, such relationships would be more explicitly described and emphasized.

In addition to critical thinking, the college initiated important interventions on the basis of the other learning outcome assessment results. Although not specifically part of the critical thinking assessment, we also used the case analysis to assess communication skills. Deficiencies in grammar and writing led directly to interventions that modified the business writing course and other parts of the curriculum.

**Lessons Learned**

A number of books describe assessment of student learning outcomes. In the early 1980s, members of the Academic Program Evaluation Project (APEP) developed a 5 stage evaluation process (see Appendix E) used as the basis for 10 case studies describing details of the evaluations conducted at such universities as Ball State University, Western Carolina University, Western Kentucky University, and the University of Nebraska at Omaha (American Association of Colleges and Universities, 1986). Banta, Lund, Black, and Oblander (1996) used 9 principles to assess learning developed by the American association for higher learning to examine 82 case summaries. These nine principles are presented in Appendix F. Both of these lists provide extremely valuable insights into the assessment process. These publications (American Association of College and Universities, 1986; Banta et al., 1996) focus on assessment in general, whereas our experience focused on assessment of critical thinking. How do the lessons learned compare with or contrast with the experiences of others, and how do they contribute to the overall knowledge about assessment? The following are some lessons that are not always explicit in these otherwise valuable lists.

**Assessment Is a Journey**

Developing a meaningful and useful assessment is a continuing process, not a closed-end project. It does not end at a particular time or after a specific period. It is an ongoing effort that requires constant reevaluation, revision, and improvement of procedures. This
is especially true concerning the evaluation of the efficacy of interventions. This is not explicit in the APEP stages, but is captured by American Association of Higher Education (AAHE) principle 5. Our experience confirms as a lesson learned that if faculty and administration view assessment as a closed-end project, the natural tendency will be to get it done. If it is viewed as an ongoing process, the more likely result will be to get it right.

**Assessment Requires Commitment From Stakeholders**

Stakeholders such as faculty and administrators have to really want to succeed. The commitment of time by stakeholders is critical. In the case of this business college, the faculty and administration had to do everything that was already on their schedule plus the added demands of assessment tasks. Neither the faculty nor the administrators involved in developing the assessment materials received any reduction in normal assignments. Department chairs participated in what seemed an endless series of meetings. Although administrators and faculty who attended seminars and conferences received financial support, participation in such events added to an already full schedule. APEP stage 1 includes participation by stakeholders, but is not explicit about the level of commitment necessary. The AAHE principle 6 implies the need for involvement of representatives from the educational community but does not emphasize the deep commitment that is needed. Our more explicit lesson learned is that those who embark on developing an effective assessment process should be clearly cognizant of the added demands it will require, and have sufficient commitment to accept the findings.

**Assessment Requires Allocation of Resources**

Developing a useful assessment requires significant allocation of financial and other resources. For example, financial resources are required to access outside expertise in the form of seminars, conferences, and consultants. Faculty and administrators need to travel to conferences to learn and share. Additional people are also needed for collection, analysis, and reporting of assessment results. The assessment process requires reviews by multiple committees. All the additional efforts require reallocation of time from other efforts. Our lesson learned is that resources are almost mandatory to achieve a deliverable product. Strangely, the need for resources is missing from both the APEP stages and AAHE principles.

**You Are Not Alone**

A significant lesson learned was to find knowledgeable people and develop a network to share experiences. The initial efforts by the University of West Florida’s business college began in 2003 shortly after AACSB revised its accreditation criteria. Despite the leadership support of the college administration, the very first efforts in 2003 were fairly depressing; sometimes the faculty felt like it was on its own. The initial attempts to reach out to other schools and see what they were doing resulted in materials and advice that were uninspiring and of little use. However, key faculty and administrators soon found useful conferences and seminars including some AACSB seminars, and a network of contacts developed that improved the quantity and quality of help received. Qualified consultants with relevant expertise and training materials shared their knowledge, and the quality of sample materials improved and the assessment development was able to move forward. Neither the APEP stages nor the AAHE principles mention soliciting outside resources. Some examples in the literature even contend that an institution should start on its own. However, we recommend seeking help early and consistently.

**Read Before You Leap**

Many useful publications are available to assist in the assessment effort. Some are relatively new (e.g., Maki, 2004). Martell and Calderon’s (2005) book Assessment of Student Learning in Business Schools: Best Practices Each Step of the Way has many excellent discussions of the assessment process, such as their chapter on assessment in business schools. Those interested in learning about the variety of different approaches that have been used should read the work of Banta et al. (1996). These authors discuss principles of good practice in assessment and go on to describe over 82 examples of effective assessment practices on college campuses across the nation. Palomba and Banta (1999) provide a broad discussion of characteristics of a good assessment program based on the AAHE principles. For any institution initiating or continuing with an assessment of student learning effort, the message is clear—there are wonderful resources available, beginning with the AACSB Web site and spreading out from there, and the wise institution will use them.

Once an assessment publication is obtained, it is typically replete with references to other useful sources. Banta et al. (1996) list over 300 references in the field of assessment. Neither the APEP stages nor the AAHE principles mention consulting the literature although it is possible that the developers assumed academics would naturally consult publications. However, we recommend reading before beginning assessment.

**A Good Rubric Is Difficult to Prepare**

A substantial number of example rubrics are now available as guides. Books and consultants are available as well, but in the end, the instructors who will use the rubric must develop one that captures their learning outcomes in a way they find meaningful. The key is to “get it down, then get it right” (Mager, 1973). Instructors must learn that in developing rubrics they likely will not get it right the first time. If the instructors understand that assessment is a journey, they will not expect perfection on the first try; instead, they will develop a usable rubric understanding that they will improve it with time.

The spring 2005 rubric comprehensively assessed everything the faculty thought students should be doing. It simply was not practical in application, so the rubric was modified. However, without the first rubric, we would not have achieved the second. In fairness, the literature on rubrics generally indicates that they are difficult, situation-
practices necessary to remove gaps” (p. 5). Make changes in instructional content tasks 4 and 5: “4. Determine policy and AAHE principles are both silent about modifying their courses without the college’s support for the assessment process to provide legitimacy to the need for change. Thus, the assessment process not only adds to the knowledge of student ability in critical thinking, but also improves the ability to influence development of their critical thinking ability. When done correctly, assessment leads to the pedagogical adjustments necessary to enhance the critical thinking process throughout the college’s business curriculum. Both APEP and AAHE advocate broad participation across constituencies. Our experience confirms this.

Square Fillers Versus Doing the Right Thing the Right Way

Advice can come from many venues, and administrators and instructors must take care to listen to the right advisors. The business faculty decided early that if it was going to put forth the necessary effort to develop an assessment process, it would only settle for a meaningful and useful product. The instructors involved in assessment development occasionally had to deal with both external and internal individuals who provided recommendations that were essentially square fillers designed to placate external constituencies such as accrediting bodies. This included advice on how to cut corners and make the rubrics look good to AACSB, rather than being concerned with the usefulness of the assessment product to assess learning. Taking such advice may possibly appear easy in the short run, but this would have resulted in no benefits to the curriculum created many difficulties in the long run. Being judicious in which advice to accept is not in either the APEP stages or the AAHE principles, but it relates well to our first lesson that assessment is a journey.

Conclusion

Assessment is the wave of the future, and institutions essentially have no choice about whether to participate. Assessment likely will be a positive blessing for those who commit to it and view it as a positive change. Assessment likely will be viewed as a curse for those who fail to see the value or try to cut corners and fill squares. Assessment is challenging and assessment of critical thinking in our experience is one of the most difficult.

The business college’s process is still in the beginning stages. Although the college has learned a lot, the faculty believes it has only scratched the surface. Many questions are known but remain unanswered; others are as yet unknown and have yet to be asked. As additional rounds of assessments are accomplished, the assessment
experience provides data to analyze and to modify or tweak a curriculum. Change is a continuous process and trend data will be more powerful in revealing the true value and effect of any interventions. It will provide the answers to such questions as “Is assessment truly improving learning, or just changing things without effect?”, “Which interventions are the most effective?”, and “Are there patterns?” It is an exciting future as the process begins answering some of those questions.

NOTE

Dr. Brian E. Peach has research interests in global outsourcing, strategy education, and executive compensation.

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REFERENCES


APPENDIX A

Critical Thinking Learning Outcomes

1a. Identify and analyze key elements that comprise business problems or opportunities.

1b. Select and apply appropriate discipline frameworks to address business problems or opportunities.

1c. Select and apply appropriate problem-solving techniques to business problems.

2. Integrate knowledge across business disciplines to formulate defensible strategic business decisions.
APPENDIX B
Analytical Model

External environment
1. Dominant economic characteristics of the industry environment.
2. Competitive analysis–industry forces
3. Driving forces
4. Competitive position of major firms or strategic groups
5. Competitor analysis
6. Industry prospects

Internal environment
1. Current situation
2. Strengths, weaknesses, opportunities, and threats (SWOT)
3. Competitive strength assessment
4. Strategic issues or challenges

Action plan
1. List of possible alternatives
2. Recommendations
3. Implementation plan
4. Control and evaluation plan

APPENDIX C
Initial Critical Thinking Rubric (Spring 2005)

A. The student demonstrates broad understanding in integrating disciplinary concepts by selecting and applying appropriate models to a case analysis or business situation.
B. The student demonstrates good understanding in integrating disciplinary concepts by selecting and applying appropriate models to a case analysis or business situation.
C. The student demonstrates adequate understanding in integrating disciplinary concepts by selecting and applying appropriate models to a case analysis or business situation.
D. The student demonstrates deficient understanding in integrating disciplinary concepts by selecting and applying appropriate models to a case analysis or business situation.
F. The student demonstrates insufficient understanding in integrating disciplinary concepts by selecting and applying appropriate models to a case analysis or business situation.

APPENDIX D
Revised Critical Thinking Rubric (Spring 2006)

Exceeds expectations (3)
Correctly analyzed the situation and extracted relevant information
Identified major issues confronting the organization
Developed alternative responses to issues
Developed appropriate strategies
Developed appropriate implementation plan

Meets expectations (2)
Situation analysis had some gaps in relevant information
Identified most of the major issues
Developed alternatives for most issues
Implementation plan has minor gaps

Below expectations (1)
Insufficient identification of relevant environmental data
Partial identification of major issues confronting organization
Inadequate development of alternatives
Incomplete implementation plan
APPENDIX E
Stages of Academic Program Evaluation Process (APEP; see American Association of State Colleges and Universities [AASCU], 1986)

Stage 1. Develop definitions of generic skills
Stage 2. Identify performance indicators, criteria, and testing procedures
Stage 3. Assess students and programs
Stage 4. Evaluation—judge student and program performance
Stage 5. Policy analysis and decision making

APPENDIX F

1. Assessment of student learning begins with educational values.
2. Assessment is most effective when it reflects an understanding of learning as multi-dimensional, integrated, and revealed in performance over time.
3. Assessment works best when the programs it seeks to improve have clear, explicitly stated purposes.
4. Assessment requires attention to outcomes but also and equally to the experiences that lead to those outcomes.
5. Assessment works best when it is ongoing, not episodic.
6. Assessment fosters wider improvements when representatives from across the educational community are involved.
7. Assessment makes a difference when it begins with issues of use and illuminates questions that people really care about.
8. Assessment is most likely to lead to improvement when it is part of a larger set of conditions that promote change.
9. Through assessment, educators meet responsibilities to students and the public.