

LCT Presentation

Development of On-line Tools to Enhance Learning Outcome Assessment (LOA) in both Undergraduate and Graduate Programs

Rama Radhakrishna
Professor and Assistant Dean
102 Ferguson Building
Penn State University
University Park, PA 16802
Brr100@psu.edu

John C, Ewing, Associate Professor
215 Ferguson Building
Penn State University
University Park, PA16802
Jce122@psu.edu

Kaila Thorn, Doctoral Student
204B Ferguson Building
Penn State University
University Park, PA 16802
Kvt5218@psu.edu

Development of On-line Tools to Enhance Learning Outcome Assessment (LOA) in both Undergraduate and Graduate Programs

Introduction/need for innovation or idea

Colleges and universities across the United States have been asked to carry out learning outcome assessments as part of the accreditation process. The Middle States Commission on Higher Education expects that all programs develop program-level learning objectives, outcomes assessments, and program improvement plans. In addition, programs must document evidence of formal assessment measures and show that data from such assessments are used for program improvement.

Learning outcomes describe what students are expected to demonstrate and describes what students can demonstrate in terms of knowledge, skills, and values upon completion of a course or courses or a degree program (Osters and Tiu, 2008; Suskie, 2009). We followed the [State] University Graduate Council's five Scholarly goals: 1) Demonstrate appropriate breadth and depth of *knowledge* and comprehension of the major issues of their discipline; 2) Use disciplinary methods and techniques to *apply knowledge*, and – as appropriate to the degree – create new knowledge; 3) *Communicate* the current issues of their discipline effectively; 4) Demonstrate *analytical and critical thinking* within their discipline, and, where appropriate, across disciplines; and 5) Know and conduct themselves in accordance with the *highest ethical standards, values, and best practices* of their discipline where these are defined (Graduate Council Scholarly Goals, [State] University). In addition, we used two frameworks—Bloom's Taxonomy (1956) and Graduate Education Milestones. We linked the 6 levels of Bloom's Taxonomy (knowledge, comprehension, application, analysis, synthesis, and evaluation) in developing the three on-line tools and at the same time connect the tools to the three Graduate Education Milestones (Introductory, Practice, and Mastery).

How it works/Methodology/Process

In this presentation, we share a suite of LOA tools we have created to enhance student learning and success. These tools include: **Structure Feedback (SF)**, **RECAP** (R-Read/Recall class materials; **EC**-Engage in conversations, group activities; **A**-Apply what you read and learned in class via exams, assignments, projects and presentations and **P**-Progress/Performance as determined by course grade), and **TPS** (Think, Pair and Share), an active learning strategy.

Structure Feedback (SF) involves asking students after couple of class sessions the confidence they have in understanding the concepts discussed in class. A short survey with a list of topics discussed in class is provided to the students. They check each topic for their confidence in understanding the material taught. The instructor collects the completed survey and summarizes individual student scores and overall score for the class. The summaries will help provide feedback to individual students as well as what topics to be reinforced or discussed again for the entire class.

RECAP is a strategy where students, selected at random, summarize previous week's class session. The instructor prepares the RECAP sheets for each class and distributes them in the previous class session so that students can come prepared for next class session. Students selected at random will present to the class and submit written responses to the questions on the RECAP sheet. This approach has helped students to be current and be prepared as course content becomes more complex. From the instructor perspective, RECAP strategy is very helpful in organizing and tracking where students are in the class so that adjustments can be made during the course of the semester. RECAP strategy also helps students not only to come prepared for each class session, but also helps their presentation skills. Further, RECAP provides a good cumulative summary of what has been discussed or presented in previous classes and saves instructor time in class preparation.

TPS is a three-step active learning strategy that can be used in any classroom format which gives students time to think on a topic, turn to their neighbor for a short discussion and share the results of the discussion to the rest of the class. Providing students with opportunities to experience what they are doing, observe what others do and have a conversation/dialogue with others and themselves will help them to critically think and apply concepts taught in class to real life situations. TPS also serves as a feedback mechanism for both students and the instructor. If properly implemented, it saves instructor time, keeps students prepared, helps students to get more involved in class discussion and participation, and provides for cumulative assessment of student progress. For instructors, TPS can help adjust their teaching style, emphasis on content to be taught and selection of appropriate reading materials.

Results/Implications

These tools have been used in both undergraduate and graduate level courses and has been found useful to both students and for instructors as a feedback mechanism to enhance student learning. In addition, students in their course evaluation comments indicated that these tools were helpful for them to stay on track with the content taught (RECAP), increased their critical thinking (TPS). Structured feedback as a tool helped the students to recognize their current level of learning, and at the same time helped the instructor to reflect on his/her teaching strategy and make changes as needed. Feedback from students have been very positive and beneficial to instructor to adjust his/her teaching style. We also are planning to use these tools for documenting milestones (phases) in graduate education. We believe that in an era of learning outcome assessment, these three tools will be valuable to instructors as they implement strategies to enhance learning outcomes of courses they teach.

Future plans/advice to others

To date a total of five courses have used one or all three tools to document learning outcome assessments. We have received positive feedback from both students and instructors. Based on this feedback, our next step is to use these as an online tool so that it can be implemented on a large scale in the department and the college. We are also exploring to use the tool using phone applications. We have created templates for each of the three tools that can be used in-class or through on-line. The use of these tools depends on class level, subject matter taught, class size, learning outcomes, and instructor time. One note of caution is that these tools are a challenge to use in large size classes. In such situations, instructors can use this on a random basis, that is, one or two times in a semester. These three tools have the potential for broad adoption by all programs and can be easily adaptable to technology in many universities. Finally, we are planning on using both direct (direct survey to students) and indirect methods (focus groups or interviews with students and faculty) to evaluate the impact of these tools on learning and teaching.

Cost/Resources Needed

The major cost involved is to put this on-line which may require a staff person or a programmer. It is also a time commitment for instructors to monitor the progress the students are making and at the same time adjusting to their teaching style based on the feedback. If the abstract is accepted, we will bring copies of the tools used in both graduate and undergraduate courses.

References

Bloom, B., Englehart, M. Furst, E., Hill, W., & Krathwohl, D. (1956). *Taxonomy of educational objectives: The classification of educational goals. Handbook I: Cognitive domain*. New York, Toronto: Longmans, Green.

Osters, S., Tiu, S.F. (2008). *Writing measurable learning outcomes*. Paper presented at the 3rd Annual Texas A&M Assessment Conference, College Station, TX.

Suskie, L. A., (2009), *Assessing Student Learning: A Common-Sense Guide*, 2nd Ed., San Francisco, CA: John Wiley and Sons.