Importance of outcome-Based Education: NAAC Perspective

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Abstract:

Outcome-based education is student-centered instruction that focuses on mensuration student performance i.e. outcomes. Outcomes include knowledge, skills, and attitudes. Outcome-based accreditation-focus remains on an evaluation of outcomes of the program, though input and output parameters are also important. In 1986, Govt. of India came out with the National Policy on Education. As a follow up of this policy statement, Govt. of Republic of India | established 2 separate bodies particularly National Board of enfranchisement (NBA) through All India Council for Technical Education (AICTE) and National Assessment Council (NAAC) through University Grants Commission (UGC) in the year 1994. Both the bodies provide accreditation to those institutions practicing prescribed Quality Assurance System and achieve a specified level of quality as per the criteria defined. While NAAC concentrates on the Institutional Accreditation where NBA focuses largely on the parameters that communicate the strength & weakness of a program. This Paper discussed Bloom's Texonomy which is very much important for Outcome-based Education.

Introduction

Accreditation is a process of quality assurance and improvement, whereby a programme in an institution is critically appraised to verify that the institution or the programme continues to meet and exceed the norms and standards prescribed by the appropriate designated authorities. NAAC accreditation is a quality assurance scheme for higher technical education. The significance and role of Accreditation

- To stimulate the academic environment and quality of teaching and research in these institutions and contribute to the sphere of knowledge in its discipline,
- To motivate colleges and/or institutions of technical and professional education for research, and adopt teaching practices that groom their students for the innovation and development of leadership qualities,
- To encourage innovation, self-evaluation and accountability in higher education.
- To promote necessary changes, innovation and reforms in all aspects of technical and professional education and help institutions to realise their academic objectives.
- To provide graduates with quality education which lead to a wide range of job opportunities globally and entrepreneurship abilities.

The process of mapping and attainment of Cos and Pos is a complex and time consuming process. There are various issues related to university affiliated colleges. Issues are:

Issue1: Cos varies course-wise and program-wise. There is no standard procedure laid to calculate Cos and Pos. Due to different assessment methods, it is a difficult task to develop common attainment method.

Issue2: University results plays major role in attainment of course. The problem associated with university results is that, university does not issue question wise marks of each student and in such a case individual course outcome attainment is not possible.

Issue3: Internal assessment is the requirement of continuous assessment and is essential for each CO attainment. University does not provide support for continuous assessment like test.

This Paper discuss Bloom's taxonomy explains a hierarchy of cognitive-learning levels ranging from knowledge of specific facts and conventions, to more advanced levels of analysis, synthesis, and evaluation. Bloom's taxonomy is presented to help students strive to attain more sophisticated levels of understanding and abstraction in this course and their entire educational experience.

Benjamin Bloom was an educational psychologist who developed a list of intellectual levels that are important in the learning process. His list, known as Bloom's Taxonomy, is useful for teachers in a variety of ways. Teachers who use Bloom's Taxonomy to guide their instruction will find that their students prosper intellectually as a result.

Lesson Planning

When planning lessons, use Bloom's Taxonomy to create the activities you will have your students perform. Start at the beginning of the taxonomy and work your way to the end; sometimes the taxonomy is displayed as a pyramid, so you would start at the base and work your way up. Having your students work through the levels of the taxonomy helps them to familiarize themselves with the materials you present in your instructional units, going from basic activities to more advanced ones.

For example, the base of Bloom's Taxonomy is the knowledge level, where students learn basic information and are able to memorize and remember it. At this level of instruction, you would plan activities in which students try to memorize facts and recall them, possibly using flash cards or other memory devices. At the centre of the taxonomy is the application level, where students employ problem-solving and the use of facts. At this level, students might explore the significance behind the information they have learned so far in their unit. At the end of the taxonomy (or the top) is the evaluation level, where students resolve conflicts and develop opinions. For this level, students might write a position paper using the information they have learned in the unit.

Direct Questioning

1. Bloom's Taxonomy can be used across several lessons in a unit, but it can also be useful within one single lesson or class period. When you review information with your students, use Bloom's Taxonomy to guide your questions. Start with knowledge-level questions and move to evaluation-level questions, or mix them up as you go along. Asking students questions on a variety of levels helps you to understand how well they know the material. It may also help you differentiate your instruction, if you determine that one group of students seems capable of evaluating while another group is still on the understanding level of the taxonomy with this information.

Assessments

2. Use Bloom's Taxonomy as a rubric to judge your assessments of your students. Old Dominion University's website has a useful list of the taxonomy levels along with the verbs that explain what students can do or understand on each level and a list of ways you would evaluate student

understanding of a topic using the taxonomy. When you assign an essay or project at the end of a unit, determine whether your students have made it to an evaluation level of understanding with the topic (they are able to create something new using the information you have taught them) or if they fall within the parameters of one of the lower levels of understanding

Bloom's support for course design

Bloom's taxonomy is a powerful tool to help develop learning objectives because it explains the process of learning:

- Before you can understand a concept, you must remember it.
- To apply a concept you must first understand it.
- In order to evaluate a process, you must have analysed it.
- To create an accurate conclusion, you must have completed a thorough evaluation.

However, we don't always start with lower order skills and step all the way through the entire taxonomy for each concept you present in your course. That approach would become tedious–for both you and your students! Instead, start by considering the level of learners in your course:

Are lots of your students freshman? Is this an "Introduction to…" course? If so, many your learning objectives may target the lower order Bloom's skills, because your students are building foundational knowledge. However, even in this situation we would strive to move a few of your objectives into the applying and analysed level, but getting too far up in the taxonomy could create frustration and unachievable goals.

Are most of your students juniors and seniors? Graduate students? Do your students have a solid foundation in much of the terminology and processes you will be working on your course? If so, then you should not have many remembering and understanding level objectives. You may need a few, for any radically new concepts specific to your course. However, these advanced students should be able to master higher-order learning objectives. Too many lower level objectives might cause boredom or apathy.

Table 1. Showing Working of Bloom's works with learning objectives

Bloom's Level	Key Verbs (keywords)	Example Learning Objective
Create	Design, formulate, build, invent, create, compose, generate, derive, modify, develop.	By the end of this lesson, the student will be able to design an original homework problem dealing with the principle of conservation of energy.
Evaluate	Choose, support, relate, determine, defend, judge, grade, compare, contrast, argue, justify, support, convince, select, evaluate.	By the end of this lesson, the student will be able to determine whether using conservation of energy or conservation of momentum would be more appropriate for solving a dynamics problem.

Analyze	Classify, break down, categorize, Analyse, diagram, illustrate, criticize, simplify, associate.	By the end of this lesson, the student will be able to differentiate between potential and kinetic energy.
Apply	Calculate, predict, apply, solve, illustrate, use, demonstrate, determine, model, perform, present.	By the end of this lesson, the student will be able to calculate the kinetic energy of a projectile.
Understand	Describe, explain, paraphrase, restate, give original examples of, summarize, contrast, interpret, discuss.	By the end of this lesson, the student will be able to describe Newton's three laws of motion to in her/his own words
Remember	List, recite, outline, define, name, match, quote, recall, identify, label, recognize.	By the end of this lesson, the student will be able to recite Newton's three laws of motion.

Source: Learning objective examples adapted from, Nelson Baker at Georgia Tech: nelson.baker@pe.gatech.edu

Course level and lesson level objectives

The biggest difference between course and lesson level objectives is that we don't directly assess course level objectives. Course level objectives are just too broad. Instead, we use several lesson level objectives to demonstrate mastery of one course level objective. To create good course level objectives, we need to ask ourselves: "what do I want the students to have mastery of at the end of the course?" Then, after we finalize our course level objectives, we have to make sure that mastery of all of the lesson level objectives underneath confirm that a student has mastery of the course level objective—in other words, if your students can prove (through assessment) that they can do each and every one of the lesson level objectives in that section, then you as an instructor agree they have mastery of the course level objective.

Working of Bloom's with course level and lesson level objectives:

- Course level objectives are broad. You may only have 3-5 course level objectives. They would be difficult to measure directly because they overarch the topics of your entire course.
- Lesson level objectives are what we use to demonstrate that a student has mastery of the course level objectives. We do this by building lesson level objectives that build toward the course level objective. For example, a student might need to demonstrate mastery of 8 lesson level objectives in order to demonstrate mastery of one course level objective.
- Because the lesson level objectives directly support the course level objectives, they need to build up the Bloom's taxonomy to help your students reach mastery of the course level objectives. Use Bloom's Taxonomy to make sure that the verbs you choose for your lesson level objectives build up to the level of the verb that is in the course level objective. The lesson level verbs can be below or equal to the course level verb, but they cannot be higher

in level. For example, your course level verb might be an applying level verb, "illustrate." Your lesson level verbs can be from any Bloom's level that is equal or below this level (applying, understanding, or remembering).

Steps towards writing effective learning objectives:

1) Make sure there is one measurable verb in each objective.
2) Each objective needs one verb. Either a student can master the objective, or they fail to master it. If an objective has two verbs (say, define and apply), what happens if a student can define, but not apply? Are they demonstrating mastery?
3) Ensure that the verbs in the course level objective are at least at the highest Bloom's Taxonomy as the highest lesson level objectives that support it.
4) Strive to keep all your learning objectives measurable, clear and concise.

20 More Ways to Use Bloom's Taxonomy

The three obvious ways to use Bloom's Taxonomy is in lesson planning, creating questions, and assessments. Here are another 20 ways to use the taxonomy levels and verbs in the classroom.

1) Personalize learning by challenging students at their level.
2) Support students in self-directed learning.
3) Provide feedback.
4) Map the curriculum.
5) Create students progress visually.
6) Use the taxonomy to assess your understanding of a topic.
7) Summarize a lesson or reading passage.
8) Classroom discussions or informal group discussions.
9) Brainstorm topics for lessons.
10) Evaluate the significance of a historical event.
11) Improve assessments and follow-up.
12) Improve direct questions to cover various levels.
13) Plan video lesson series, podcasts or webinars.
14) Create digital citizenship activities or campaign.
15) Plan project-based learning.
16) Brainstorm ideas for lessons, questions, and activities.
17) Evaluate winners in debates or competitive class activities.
18) Plan and create a scavenger hunt.
19) Use Bloom's Taxonomy apps.
20) Plan and adapt to a digital learning environment.

Conclusion:

It is easier for academics to think about ways to use once viewing the verbs for the upper levels of Bloom's taxonomy.

One of the most important aims in education is the attainment of critical or higher-order thinking skills. Identifying how to encourage, teach and then assess these skills is an important role of the teacher.

One tool that has been well regarded and had several successes within the past is Bloom's Taxonomy of academic objectives (Bloom et al., 1956).

This analysis and resource guide can deal specifically with the first Bloom's Taxonomy.

The author is awake to the revised taxonomy printed in 2001 (Anderson et al) , however Bloom's version continues to be the foremost observed taxonomy.

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