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Bloom’s Taxonomy, a Closer Look

In 1949, educational psychologist Benjamin Bloom and other educators, psychologists, and school examiners started to develop a taxonomy to provide a framework for the assessment of student learning outcomes and educational goals. In 1956, Taxonomy of educational objectives: The classification of educational goals. Handbook I: Cognitive domain was published. Subsequently, the second handbook on the affective domain was published in 1964, however, the third handbook on the psychomotor domain has been written by other authors as the original committee members were unable to find psychomotor objectives in literature at that time. While all three domains comprise the learning spectrum, only the cognitive domain received wide national and international attention (Anderson et al., 2001).

Bloom’s cognitive taxonomy categorizes six major classes of intellectual skills in the cognitive domain: knowledge, comprehension, application, analysis, synthesis, and evaluation. The taxonomy is hierarchical and builds upon objectives in previous levels of classification. Recall and memorization are the suggested skills at the basic knowledge level. Comprehension is at the next level, which requires that students have the ability to organize and process information, and describe ideas in their own words. Application is at the beginning of high level problem-solving skills where students demonstrate their abilities to identify issues and form appropriate strategies to find solutions. Progressing to the analysis level, students should be competent in distinguishing facts from values. At the synthesis-level, students put together information to create new ideas or draw their own conclusion. At the highest evaluation level, students are able to make judgments based on internal and external criteria.
Bloom’s cognitive taxonomy has been applied to a diverse number of disciplines since its initial publication, but not in disciplines more related to affective and psychomotor learning, such as music (Hanna, 2007) and technology (Tyran, 2010). In 2001, a revision to Bloom’s taxonomy was published by Anderson et al to address these concerns, to incorporate new knowledge and thought, to include affective domain in the framework, and more importantly, to integrate the new accountability legislation which established standard based curriculum in many states. In fact, critical thinking, as an essential objective in Bloom’s Taxonomy, is emphasized in education, and is instituted to the Common Core (Porter, Fusarelli, & Fusarelli, 2015), which has been adopted in forty-three states, the District of Columbia, and four territories (National Governors Association & Council of Chief State School Officers, 2015).

The most significant change in the new taxonomy is the two-dimensional (cognitive and knower) approach, rather than the one dimensional, which includes different types of knowledge: factual, conceptual, procedural, and metacognitive (Krathwohl 2002). Educational objectives can be easily classified within these two dimensions. It also changed the six major cognitive process categories from noun to verb forms and switched the order of synthesis and evaluation: remember, understand, apply, analyze, evaluate, and create.

Bloom’s taxonomy has been used by teachers to design curriculum and as a learning evaluation instrument since it was introduced. It is a reference tool for creating standardized testing and development of textbook (Booker, 2007). The goal for using Bloom's taxonomy is to encourage higher-order thinking skills in students by building up from lower-level cognitive skills. Yet, the linear approach and the hierarchical structure in the pyramid diagram (Figure 1 below) have been a subject of criticism. They pointed out that placing knowledge at the bottom of the Bloom’s taxonomy downplayed the importance of knowledge in the learning process.
Wineburg & Schneider used an example in their article to illustrate that when students used historical knowledge base without the application of critical thinking skills, they failed to connect the information in the context of the historical moment, as “knowledge possessed does not mean knowledge deployed” (Wineburg & Schneider, 2009, p.57-58). The Bloom’s Taxonomy could promote passive learning approach that limits the intellectual activity to reach the highest goal of new knowledge creation. As a matter of fact, problem solving can be used to develop new knowledge for new and deep discoveries. Indeed, many times, flexible approaches to Bloom’s taxonomy should be considered to achieve better learning objectives.

Another critic Michael Booker (2007) asserted that Bloom’s taxonomy, intended for college level education, has been mis-used for K-12 while shortchanging the foundation education. He mentioned examples of Bloom’s taxonomy used in early childhood education down to the preschool level. This enthusiasm to promote “higher order thinking” has come at the expense of basic skills, as he claimed. Lacking the support of fundamental knowledge, higher-order thinking has become part of the realm of fancy, like a castle in the air. He also cited other research and attributed American students’ low performance in global benchmark that supported his view about misappropriation of high order thinking from Bloom’s Taxonomy on K-12 students. Booker’s criticisms are not on the Bloom’s taxonomy, but rather, are on the misuse of the taxonomy.

Learning process does not always go in a one-way direction following the hierarchical order as designed in Bloom’s Taxonomy. Some researchers observed in a pharmacy law course that students used higher-order learning skills to help memorize the law, breaking Bloom’s
cognitive sequence. The researchers then delineated learning process and redesigned the course to make it more relational to and interactive with current debate of the health policy process after applying Fink’s Taxonomy of significant Learning. The course included a project and simulated activity to connect law and policy making process given the current focus on health care reform. The caring dimension engaged students in developing new feelings, interests, and values about what they were learning. (Kruger, Pharm, Russell, and Bischoff, 2010).

Fink (2003) commented that Bloom’s Taxonomy is designed with a linear series of cognitive skills that are developed in order for a concept to be learned. He further stated that important kinds of student learning do not easily emerge from Bloom’s Taxonomy. Fink then expanded Bloom’s Taxonomy through the addition of elements related to human interaction that are important in creating a new taxonomy, “significant learning experience,” to include areas not represented in Bloom’s Taxonomy such as “learning how to learn, leadership and interpersonal skills, ethics, communication skills, character, tolerance, and the ability to change” (p. 29).

There are six components of Fink’s Taxonomy of Significant Learning: 1) Foundational Knowledge - the cognitive knowledge that forms the foundation for other kinds of learning to occur; 2) Application - the dimension that moves learning forward through practice; 3) Integration - the connections and interactions of different content areas that give new intellectual power 4) Human Dimension - the understanding that allows learner to recognize their potential and important things about others; 5) Caring - the new feelings, values, and interests that give the motivation for new learning; and 6) Learning How to Learn - the knowledge about the process of learning that leads to continued life-long learning. Significant learning is a learning-center approach as opposed to the content-centered one in Bloom’s. It integrates the cognitive dimensions with human dimension and attitude, and makes an expansion of the affective domain.
The Taxonomy of Significant Learning requires teachers to design learning related to situational factors, and students to achieve learning experience “that has some kind of lasting change and is important in terms of the learner’s life” (Fink, 2003, p.30).

Bloom’s taxonomy is a well-established reference tool for education, and is used as a framework for developing a common language for learning goals and an assessment for learning objectives. Its linear and hierarchical approach is aimed to help students reach upper-level intelligence. However, as learning and teaching styles are more and more diverse in a technology age, Bloom’s taxonomy should be used as a guideline to allow flexible approaches to reach optimum educational objectives. After all, it is the application of knowledge that is at the heart of education. Fink’s Significant Learning does not abandon Bloom’s content-centered approach. It focuses on the use of the content and applies it to create greater value for learners and society.

References


