

Leonard Sheehy

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The History, Applications, and Critiques of Bloom's Taxonomy in Curriculum, Instruction, and  
Educational Research

Bloom's Taxonomy was derived from a series of meetings of educators, psychologists, and school examiners at an American Psychological Association conference in 1948 (Booker, 2007). At these conferences Bloom and this group found common interest in creating a theoretical framework that could give educators the ability to communicate and to discuss thoughts about testing with other examiners. Through deliberation the group decided that they could develop a framework by classifying educational objectives. The examiners fashioned a system for outcomes and assessments by developing a classification system for thinking behaviors that are important to education (Icels, 2015). This deliberation resulted in what is known as Bloom's Taxonomy, named after Dr. Benjamin S. Bloom, a professor at the University of Chicago. He was the editor of *Taxonomy of Educational Objects* that was intended to define a classification system for college level test questions (Bloom, et al. 1956). This work was designed with three distinct domains (Bloom, et al. 1956). The first is the cognitive domain which defines what an educator wants their students to know. Next, the affective domain lists what a teacher wants children to care about. What actions an educator wants children to take are included in the last, psychomotor domain. The majority of attention is focused on the first

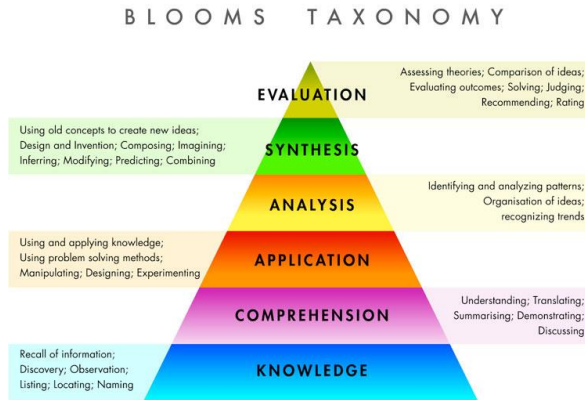
domain titled *Taxonomy of Educational Objectives The Classification of Educational Goals, Handbook I: Cognitive Domain*. A work addressing the second domain called *Taxonomy of Educational Objectives, The Classification of Educational Goals, Handbook II: Affective Domain* was also created in 1964, however it has received a fraction of the attention. There has not been a publication for the third (Booker, 2007).

Application of the cognitive domain provides teachers with classifications for learners' thinking behaviors into six progressively difficult levels (Bloom, et al. 1956). The most basic level is Knowledge. The complexity progresses to the stages of comprehension, application, analysis, synthesis, and to evaluation, which is at the highest level of intricacy. Each succeeding level is reliant upon the student's capability to achieve at the level previous to it. The educator's task is to have students become proficient at the current level so that they can transfer on to the next higher one (Bloom, et al. 1956).

Bloom's Taxonomy helped make an important shift in educator's focus: from teaching to learning. Before the publication of *Taxonomy of Educational Objectives*, a greater percent of instruction was spent on lessons focused on the recall facts. After its implementation by educators, lower-order assessment questions had been reduced (Munzenmaier, Rubin, 2013). Bloom's stages and verbs have been used extensively to design curriculum, and it's increasingly called on to support the new Common Core standards in K-12 education (Munzenmaier, Rubin, 2013). Cognitive levels are used to correlate test questions to develop retention of knowledge and critical thinking skills.

An example of Bloom's Taxonomy is demonstrated as a pyramid (figure 1). It was believed that the lower level skills needed to be developed before the higher.

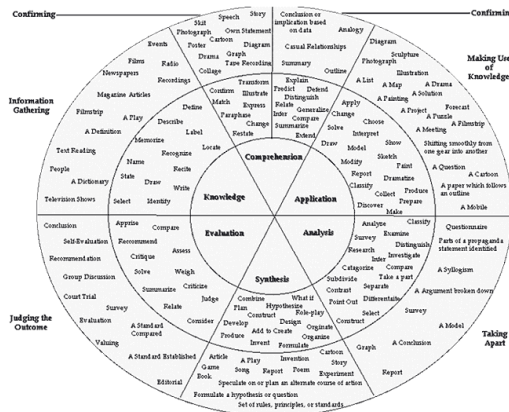
Figure 1: Bloom's Pyramid



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Another example of Bloom's work provides a different view of how one tool can be applied across many domains (Munzenmaier, Rubin, 2013). The version of Bloom's Wheel is provided in Figure 2.

Figure 2: Bloom's Wheel



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Bloom's Wheel is made of three rings. The first ring demonstrates the cognitive level of Bloom's Taxonomy; the second ring contains action-oriented verbs; with the outer ring containing lists of products and activities that demonstrate mastery (Munzenmaier, Rubin, 2013).

Developed in 2001 one of the alternatives proposed to the taxonomy is named *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of*

*Educational Objectives* (Munzenmaier, Rubin, 2013). A group of cognitive psychologists, curriculum specialists, teacher-educators, and researchers created this work that has two dimensions—knowledge and cognitive processes—and the subcategories within each dimension are more extensive and specific. The addition of a second dimension solved a weakness that allowed some behaviors to be classified at different cognitive levels (Munzenmaier, Rubin, 2013). The revision took place for two reasons. First, to measure proficiency, aligning curriculums, and designing assessments. The second reason was to modernize the work to reflect on new knowledge of how students learn and new procedures for instruction.

Critics of Bloom's work have listed some reasons they believe it should be revised. They state that the order offered by the levels does not provide stability; categories of cognitive skills can be applied at different heights. Scientific research has not validated the taxonomy is another reason for condemnation. They go on to say that the taxonomy is an outline as opposed to a teaching theory. Also, detractors take the position that educators have devalued foundational knowledge using the term "lower-level thinking skills".

Proponents of the taxonomy state that its value is derived from the use of the taxonomy as a framework to be applied for intellectual debate. They state that educators should employ it as a tool to investigate how lower and higher order thinking skills differ not as dictating theory.

An alternative to Blooms taxonomy was developed by Andrew Churches in 2007 that is of interest to individuals studying technology and education. He linked 21<sup>st</sup> century digital skills to Blooms hierarchy by including The National Education Technology Standards (NETS). Churches aligned cognitive levels in Bloom's revised taxonomy, to Web 2.0 technology skills (Munzenmaier, Rubin, 2013).

The digital revolution offers teachers and students many alternative ways to meet all levels of behaviors. Lower level skills such as recall are facilitated by tools such as bookmarks and bullets in Microsoft Word. Categorization of files, websites, or types of applications shows understanding. Time spent gaming uses skills of applying. Application skills are also used when students tag certain websites or other online data because they need to understand the content. Quality posts on blogs and other online communication depend on evaluation skills. Creation skills are developed when students write applications or direct, edit and film their own videos (Siemens, G. 2005). These digital tools move the teacher's role from provider of information to facilitator by offering learners the chance to create their own leaning plan (Siemens, G. 2005).

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Figure 1 Martin J. Whitman School of Management at Syracuse University (2014). *Blooms Taxonomy*. Retrieve on March 10, 2015, from [https://www.google.com/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&ved=0CAcQjRw&url=http%3A%2F%2Fwhitman.syr.edu%2Fwsmhelp%2Ffaculty-resources%2Finstructional-design-delivery%2Fteaching-pedagogy%2Fblooms-taxonomy.aspx&ei=rLUAVczUAoPDggTC-oN4&bvm=bv.87920726,d.eXY&psig=AFQjCNE\\_TcPvudaiPD17-9GUdV4BU\\_2\\_IA&ust=1426196239753530](https://www.google.com/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&ved=0CAcQjRw&url=http%3A%2F%2Fwhitman.syr.edu%2Fwsmhelp%2Ffaculty-resources%2Finstructional-design-delivery%2Fteaching-pedagogy%2Fblooms-taxonomy.aspx&ei=rLUAVczUAoPDggTC-oN4&bvm=bv.87920726,d.eXY&psig=AFQjCNE_TcPvudaiPD17-9GUdV4BU_2_IA&ust=1426196239753530)

Figure 2 Munzenmaier, C., Rubin, N. (2013). Bloom's taxonomy: What's old is new again. Perspectives. The eLearning Guild.