

# Curriculum Leadership Institute E-Hint

## Adding Technology to Bloom

It is safe to say that all educators are familiar with *Bloom's Taxonomy of Cognitive Domain* (developed in the 1950s), since they likely studied it as undergraduate teacher education students. In recent years, they've probably been asked to consider the "levels of thinking" as they've worked with state standards and local curriculums. *Some* educators also know that Lorin Anderson, a student of Bloom, revised the taxonomy in the 1990's (see CLI's E-hint, *The Revised Bloom's Taxonomy*, <http://www.cliweb.org/Ehintstc/CI8.pdf>)

It is true that verbs associated with the taxonomy help us when we write curriculum and prepare instructional strategies because they denote the level of thinking we expect of students. However, Andrew Churches in his article, *Bloom's Taxonomy Blooms Digitally*, says the various levels and their verbs do not adequately address new objectives presented by Information and Communication Technologies (ICT). Churches examines each level of the revised taxonomy, lists key verbs associated with each, and *expands* those lists to include digital options. In this *E-Hint*, we provide only the abbreviated lists for your consideration. However, if you're not sure what any of these technology-related verbs mean, refer to Churches' article. In that article he provides a definition for each. (<http://www.techlearning.com/article/8670>)

In the lists provided here, words in bold represent levels of thinking in the revised taxonomy. Non-bolded words are key verbs from each level, and underlined words signify digital additions.

**Remembering** – recognizing, listing, describing, identifying, retrieving, naming, locating, finding, bullet pointing, highlighting, bookmarking, social networking, social bookmarking, and searching or "Googling."

**Understanding** – interpreting, summarizing, inferring, paraphrasing, classifying, comparing, explaining, exemplifying, advanced and Boolean searching, blog journaling, twittering, categorizing, commenting and annotating, and subscribing.

**Applying** – implementing, carrying out, using, executing, running and operating, playing, uploading and sharing, hacking, and editing.

**Evaluating** – checking, hypothesizing, critiquing, experimenting, judging, testing, detecting, monitoring, blog/vlog commenting and reflecting, posting, moderating, collaborating and networking, and testing.

**Creating** – designing, constructing, planning, producing, inventing, devising, making, programming, filming, animating, blogging, video blogging, mixing, remixing, wiki-ing, publishing, videocasting, podcasting, directing/producing, creating, and building mash ups.

These digital skills should not be thought of for technology classes only. Emerging trends in education emphasize the necessity of incorporating 21<sup>st</sup> century skills into all curricular areas. When subject area committees review and revise their curriculums, it is important that they consider rigor, and pay attention to the level of verb used in each learning target/outcome. It is at this point many ICT skills can be incorporated, and the lists provided here should be helpful for committee members as they consider how to merge technology skills with regular academic content.