ABSTRACT
It is commonly accepted that memorization and recall (knowledge-level skills) are lower order cognitive skills that require only a minimum level of understanding, whereas the application of knowledge and critical thinking (application, analysis, synthesis & evaluation-level skills) are higher order cognitive skills that require deep conceptual understanding. In our Biology department we have begun introducing students to Bloom’s taxonomy during the introductory series to help students recognize the different levels of thinking they will need to master to succeed in the curriculum. To aid students in identifying the levels that are most challenging for them, we are piloting a program that provides students with their individual “Bloom’s score” after each exam. The Bloom’s score indicates how well they performed on questions requiring different levels of Bloom’s. We created the Bloom’s-based Learning Activities for Students (BLASt), a complementary student-directed tool designed to specifically strengthen study skills at each level of Bloom’s. However, we found that students were not able to use this chart effectively without further instruction. We have therefore developed a 1-hour workshop to give students practice in developing application and analysis levels of thinking.

Students to Bloom’s Distribution For Exam

Fig. 1. Bloom’s Taxonomy of Cognitive Domains

Fig. 3. Students Performance on an Introductory Biology Exam. The exam was scored for the level of Bloom’s required to successfully complete each question. Next, the Bloom’s distribution was calculated by determining the percentage of questions on the exam that required each level of Bloom’s.

Table 1. Bloom’s-based Learning Activities for Students (BLASt) LOCS = lower order cognitive skills; HOCS = higher order cognitive skills

References

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