Bloom's Taxonomy of Educational Objectives

1

Introduction

The American Psychological Association had a convention back in the year 1948 during which a group of its members, who were educational psychologists, decided that it was important to categorize the learning objectives that examiners should set as well as the types of questions that should be used to adequately measure student attainment of those objectives. In other words, the group decided to classify different levels of attainment/achievement that students should reach in a subject or course.

The group was led by an American Educational Psychologist called *Dr. Benjamin S. Bloom* who chaired the works of the committee that was set up to look into the design of a taxonomy which came to be known as the *Bloom Taxonomy of Educational Objectives*. Upon detailed research, their work was first published in 1956.

Levels of Intellectual or Cognitive Assessment and Attainment in Bloom's Taxonomy

Bloom's taxonomy contains six levels of intellectual or cognitive assessment and attainment. They are:

1. *Remember (Knowledge)*
2. *Understand (Comprehension)*
3. *Apply (Application)*
4. *Analyze (Analysis)*
5. *Synthesize (Synthesis)*
6. *Evaluate (Evaluation)*

To help you remember the various levels of the taxonomy, you may use the mnemonic:

Remy Understood Appiah's Aunty Since Evening - where **Rem**y refers to **Rem**ember, **Underst**ood is to **Underst**and, **App**iah's is to **App**ly, **A**unty is to **A**nalyze, **S**ince is to **S**ynthesize and **Ev**ening is to **Ev**aluate.

At this point, note the following:

Though Bloom's taxonomy involves similar terms as those used in the PAR, the taxonomy is related to only the "Questioning" activity in the PAR and is aimed at helping you to set questions that further challenge you to think critically.

Secondly, note that the meaning of the terms in the PAR may be different when used within the context of Bloom's taxonomy.

Thirdly, when using the PAR, you do not need to set questions that assess your thinking skills or knowledge at all the six levels described in Bloom's taxonomy, at the go. I advise students to begin with questions at the lower levels such as knowledge and comprehension and study to master the content being learned at these two levels before proceeding to set questions that require higher levels of thinking such as application, analysis, synthesis, and evaluation. Skills mastered at the knowledge and comprehension levels make it possible and easier for students to study at higher levels of thinking.

The relationship between the PAR and Bloom's taxonomy is shown more clearly in the following diagram:

Preview   Question   Read   Analyze   etc...

→

```
              ↓
          ┌─────────────┐
          │ Knowledge   │
          ├─────────────┤
          │ Comprehension│
          ├─────────────┤
          │ Application │
          ├─────────────┤
          │ Analysis    │
          ├─────────────┤
          │ Synthesis   │
          ├─────────────┤
          │ Evaluation  │
          └─────────────┘
```
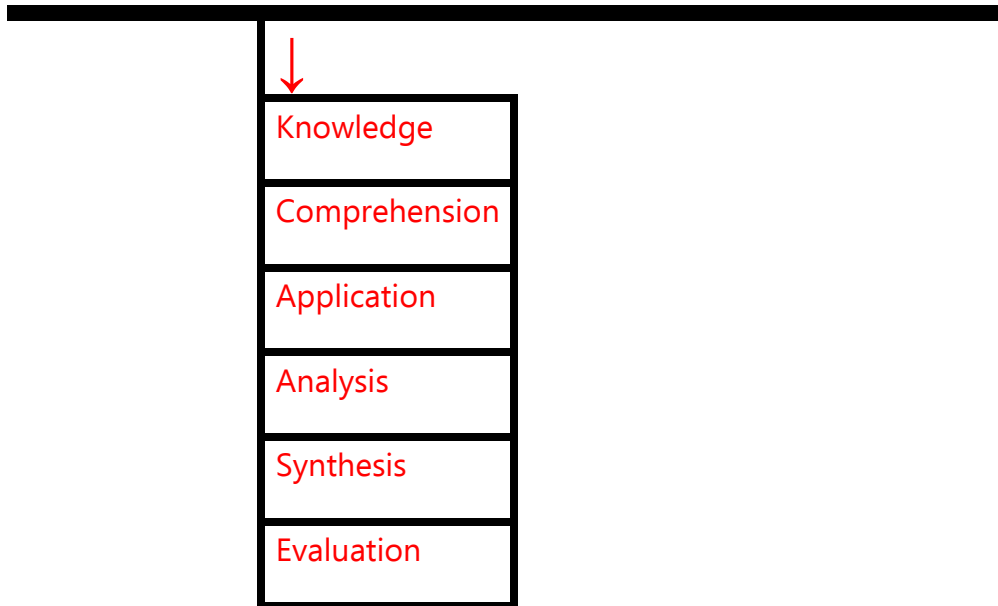
Relationship between the PAR and Bloom's taxonomy

The following are examples of keywords that you can use to set questions that measure attributes at each of the six levels of the taxonomy:

Level	Level Description/ Attributes	Keywords	Examples of Assessment Questions
1. Remember (Knowledge)	requires students to do rote memorization, recognition, or simple recall of facts	how, what, where, who, why, when, show, select, list, recall, choose, find, define, label, spell, match, name, relate, tell, omit	How is …? How did … happen? What is …? Where is …? Who was …? Who were the main …? Why did …? When did …? When did … happen? How would you show…? Could you select …? Could you list three …? Could you recall …?

2. Understand (Comprehension)	requires students to understand what the facts mean	explain, compare, contrast, interpret, classify, rephrase, summarise, extend, illustrate, infer, outline, translate, relate, demonstrate	Could you explain what is happening …? Could you explain what is meant …? How would you compare … contrast …? Would you state or interpret in your own words …? How would you classify the type of …? How would you rephrase the meaning …? How would you summarise…? What is the main idea of …?
3. Apply (Application)	requires students to correctly use the facts, rules, or ideas	apply, make use of, construct, develop, organize, experiment with, plan, select, solve, calculate, change, utilize, model, build, identify	How would you apply what you learned to develop …? What approach would you use to …? How would you use …? How would you construct…? Would you develop …? How would you organize _____ to show …? Would you experiment with … to show …? What other way would you plan to …? What facts would you select to show …? How would you solve _____ using what you have learned …? How would you calculate …? What elements would you choose to change …?
4. Analyze (Analysis)	requires students to break down information into parts	analyze, divide, relationships, classify, categorize, distinguish, distinction, function examine, inspect, simplify, test for, take part in, dissect	Could you analyze…? Would you divide …? How is _____ related to …? What is the relationship between …? How would you classify …? How would you categorize…? Could you make a distinction between …? What is the function of … in …? Could you examine …? Could you simplify …? How would you test for … in …? Could you identify the different parts …?

5. **Synthesize (Synthesis)**	requires students to combine facts, ideas, or information to create a new whole	create, build, construct, design, invent, originate, original, elaborate, propose, test, combine, compile, change, modify, plan, improve, happen, minimize, maximize, suppose, formulate, predict, estimate, compose, makeup, develop, adapt, imagine, solve, solution, discuss, modify, delete, theorize	How would you adapt _____ to create a different …? Could you construct a model that would change …? Could you construct/build …? How would you design …? Could you invent...? Could you think of an original way of/to …? Could you elaborate on the reason …? Could you propose an alternative …? How would you test...? How would you combine …? What facts can you compile …? What changes would you make to solve...? How could you change (modify) the plot (plan)..? How would you improve …? What would happen if …? What could be done to minimize (maximize) …? Suppose you could _____ what would you do …? Could you formulate a theory for …? Could you predict the outcome if …? How would you estimate the results for …?
6. **Evaluate (Evaluation)**	requires students to judge or form an opinion about the information or situation	judge, justify, award, choose, choice, criticize, conclude, evaluate, decide, recommend, defend, determine, rate, select, explain, prioritize, importance, opinion, support, agree, prove, disprove, give reasons, better, interpret, assess, influence, perceive, value, criteria, compare,	What judgment would you make about …? How would you justify …? What would you award ...? Why did they (the characters/author(s) choose …? What choice would you have made …? Could you criticize…? What data was used to conclude…? How would you evaluate …? Could you decide …? What would you recommend …? What would you cite to defend the actions …? How could you determine …? How would you rate the …? What would you select …? Based on what you know, how would you explain …? How would you prioritize…? Can you assess the value/ importance of …? What is your opinion of …? What

5

		mark, deduct, appraise, rule on, influence, estimate, measure, dispute	information would you use to support the view …? Do you agree with the actions/ outcomes …? How would you prove/ disprove …? Could you give reasons …? Would it be better if …?

6