HOW TO WRITE CLEAR AND MEASURABLE LEARNING OBJECTIVES

PROF. DR. HEDEF DHAFIR EL-YASSIN

OBJECTIVES:

At the end of this session, the participant will be able to:

1. Describe what is meant by learning objectives
2. Identify the level of knowledge necessary to achieve the objectives
3. Recognize learning goals from objectives
4. State Bloom's taxonomy
5. Distinguish between course level and lecture level outcome

- **When you begin designing a lecture, it is important to first establish its goals.**

i.e. If you start with the end in mind, you will have a clear path to follow.

A GOOD QUESTION TO ASK

"what do I want my students to be able to do at the end of this course?"

Or "*what do I want for these students to be able to do three years after they have taken this course?*"

- When you take the time to write out your outcomes, it is easier to develop assessments to measure student outcomes.

- ***<u>Well-written learning objectives are a powerful tool for ensuring that the activities and evaluations in your lecture/course is align with your course goals.</u>***

How to write learning objectives

1. **Separate learning goals from objectives**

- - **Learning goals** are long-term and broad. They lay out the general goal for the training or course, and they may not be measurable.

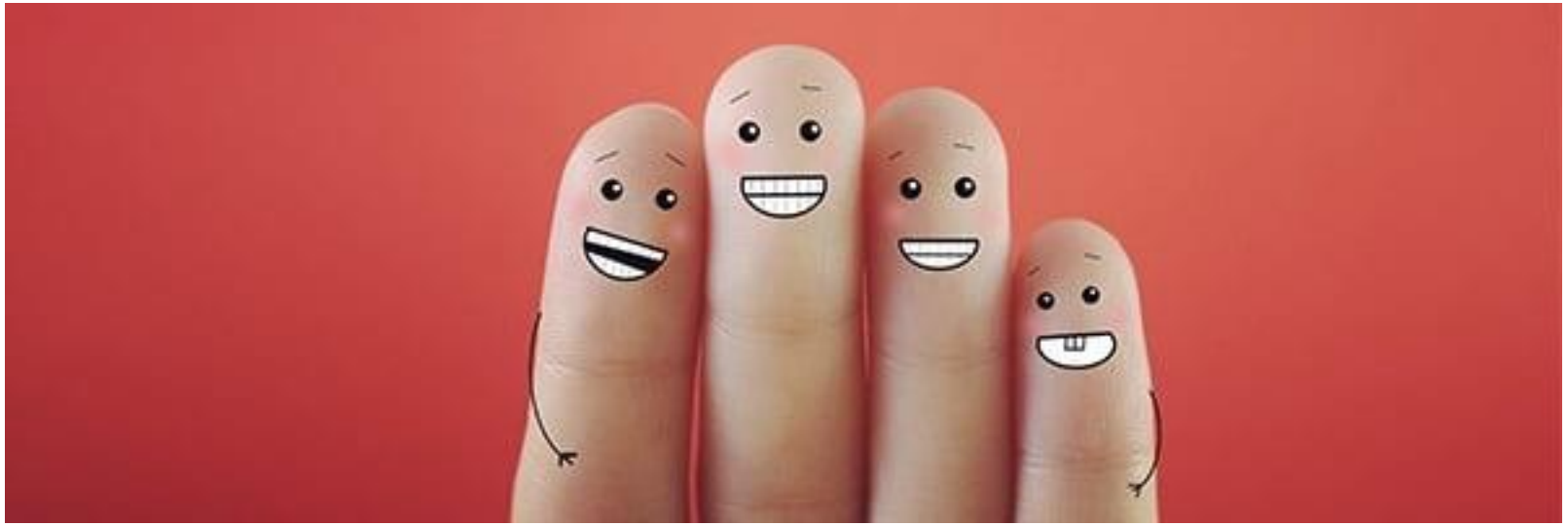
- - **Learning objectives** are a focused, measurable target that guides your training or teaching over a shorter period of time. You might set a learning objective for a single training session or a lecture.

- Learning objectives are **not** statements of topics to be covered, **not** statements of learning activities, and **not** statements about the teaching methods.
- Instead, learning objectives describe what the student will do when they have reached a specific level of competency with a skill or subject

2. Identify the Level of Knowledge Necessary to Achieve Your Objective

ASK

ATTITUDE



Changes how a learner *chooses* to act.

SKILLS

This domain focuses on changing or improving the tasks a student can perform

KNOWLEDGE

This domain focuses on increasing what to know

- Learning objectives usually focus on a single one of these areas.

WELL-WRITTEN LEARNING OBJECTIVES ARE S.M.A.R.T.

- **Specific** (each outcome clearly states *one* skill or competency)
- **Measurable** (they describe student performance in observable terms)
- **Attainable** (they target an appropriate level of learning, within the scope of the course)
- **Relevant** (assessments align with lesson level outcomes, which align with course level outcomes)
- **Time based** (set a deadline)

S — **Specific**
Clearly State your Goal

M — **Measurable**
Ensure you can Measure Success

A — **Attainable**
Set Goals you know you can Achieve

R — **Relevant**
Set Goals Relevant to your Career or Education

T — **Time-Based**
Set a Deadline for Completion

HOW CAN I CREATE SMART LEARNING OUTCOMES?

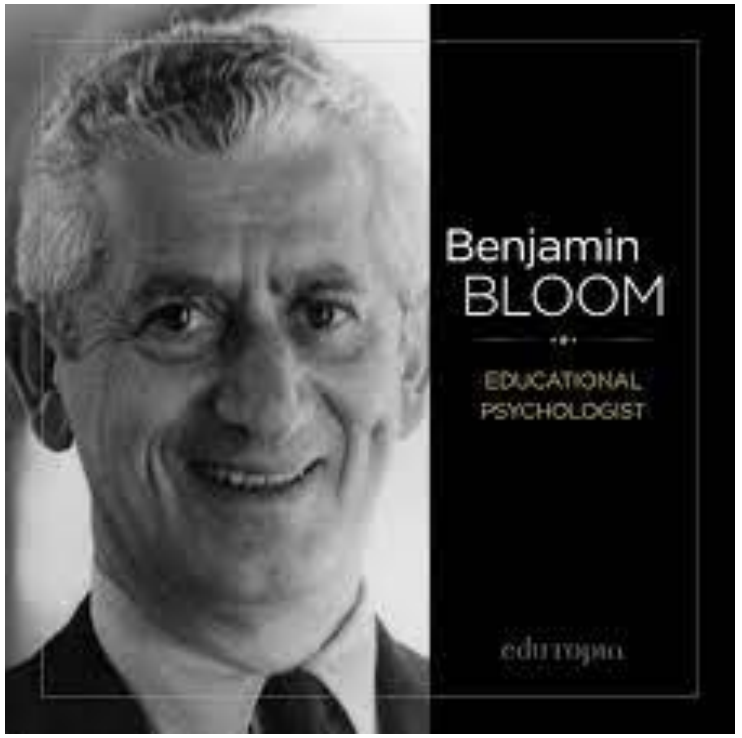
- It’s helpful to start with the same root for all of your outcomes:
- For example you might say “By the end of this lesson (or course) the student will be able to….”
- Add an action verb that describes what the student should be able to do. Consider the skill level of your students (Are they freshman? Grad students?). Choose action verbs for your learning outcomes that will move them up to the next level.

How do I find the right verbs for my student's skill level?

- **By Using Bloom's Taxonomy to Write Effective Learning Outcomes**

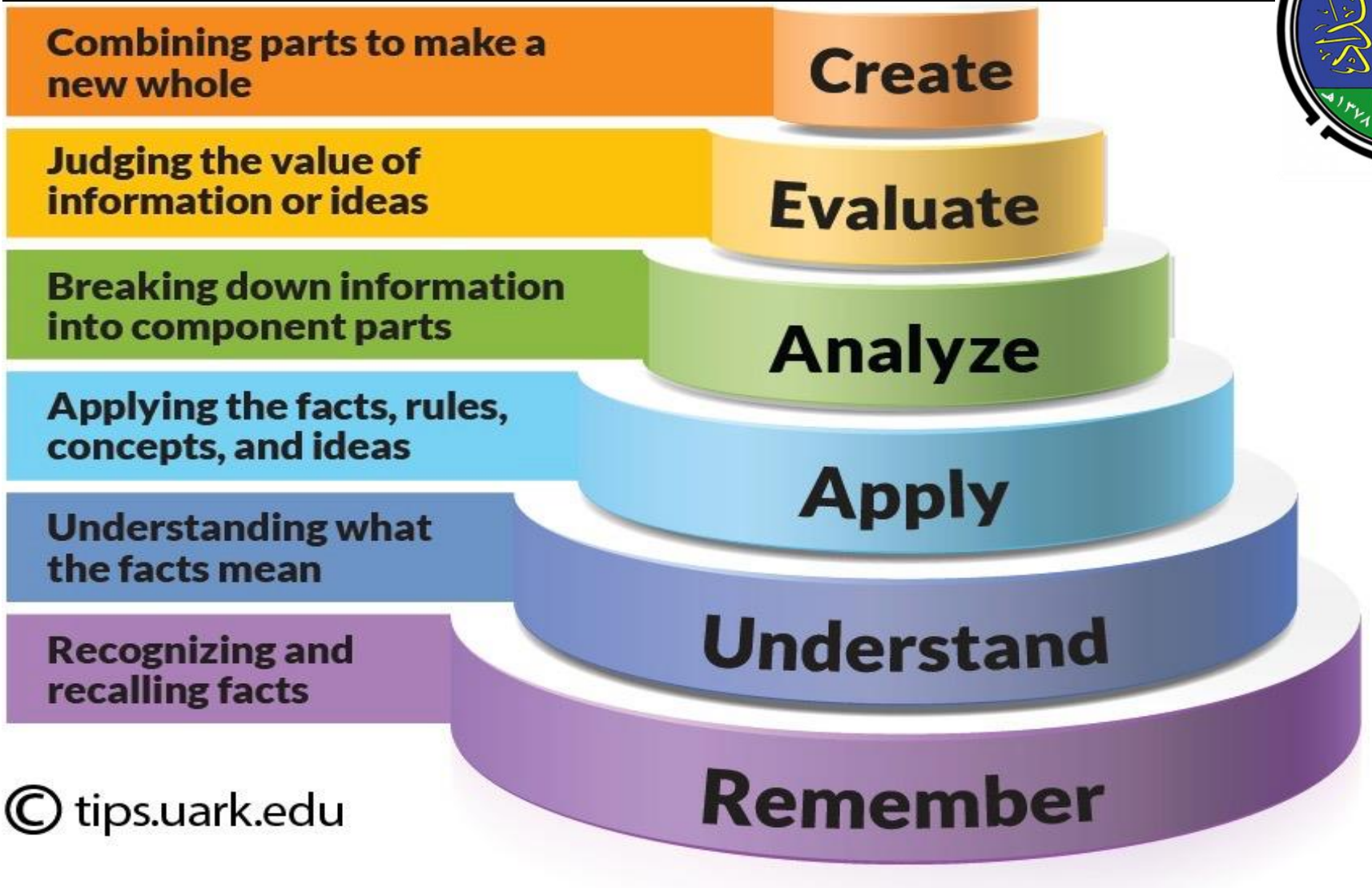
WHAT IS BLOOM'S TAXONOMY?

- **Bloom's Taxonomy is a classification of the different outcomes and skills that educators set for their students (learning outcomes). The taxonomy was proposed in 1956 by Benjamin Bloom, an educational psychologist at the University of Chicago.**



- **The terminology has been recently updated to include the following six levels of learning.**

- **These 6 levels can be used to structure the learning outcomes, lessons, and assessments of your course.**


Combining parts to make a new whole
Create
Judging the value of information or ideas
Evaluate
Breaking down information into component parts
Analyze
Applying the facts, rules, concepts, and ideas
Apply
Understanding what the facts mean
Understand
Recognizing and recalling facts
Remember
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HOW BLOOM'S CAN AID IN WRITING OBJECTIVES?

Bloom's taxonomy is a powerful tool to help develop learning outcomes because it explains the process of learning:

- Before you can ***understand*** a concept, you must ***remember*** it.
- To ***apply*** a concept you must first ***understand*** it.
- In order to ***evaluate*** a process, you must have ***analyzed*** it.
- To ***create*** an accurate conclusion, you must have completed a thorough ***evaluation***.

Bloom's Level	Key Verbs (keywords)	Example Learning Outcome
Create	design, formulate, build, invent, create, compose, generate, derive, modify, develop.	By the end of this lesson, the student will be able to design an original homework problem dealing with the principle of conservation of energy.
Evaluate	choose, support, relate, determine, defend, judge, grade, compare, contrast, argue, justify, support, convince, select, evaluate.	By the end of this lesson, the student will be able to determine whether using conservation of energy or conservation of momentum would be more appropriate for solving a dynamics problem.
Analyze	classify, break down, categorize, analyze, diagram, illustrate, criticize, simplify, associate.	By the end of this lesson, the student will be able to differentiate between potential and kinetic energy.
Apply	calculate, predict, apply, solve, illustrate, use, demonstrate, determine, model, perform, present.	By the end of this lesson, the student will be able to calculate the kinetic energy of a projectile.
Understand	describe, explain, paraphrase, restate, give original examples of, summarize, contrast, interpret, discuss.	By the end of this lesson, the student will be able to describe Newton's three laws of motion to in her/his own words
Remember	list, recite, outline, define, name, match, quote, recall, identify, label, recognize.	By the end of this lesson, the student will be able to recite Newton's three laws of motion.

COURSE LEVEL AND LECTURE LEVEL OUTCOMES

- **The biggest difference between course and lesson level outcomes is that we don't directly assess course level outcomes.**

- **Course level outcomes are just too broad. Instead, we use several lesson level outcomes to demonstrate mastery of one course level outcome.**

- **To create good course level outcomes, we need to ask ourselves: "what do I want the students to have mastery of at the end of the course?"**

PRACTICAL SESSION

Objectives

At the end of this session, the participant will be able to:

1. **Apply Bloom's taxonomy actin verbs in writing lecture's objectives**
2. **Demonstrate writing lecture's objectives**

Steps towards writing effective learning outcomes:

1. **Select an Action Verb:** Make sure there is **one** measurable verb in each objective.
2. Each outcome needs **one** verb.
3. All learning objectives should be specific and measurable.

Avoid having more than one action verb for each level of learning, and make sure it's a verb that can be measured: e,g. "Understand" is too vague, but "complete," "identify," or "recognize" are specific

- the **A, B, C, D's** every objective should contain are as follows:

- **Audience**: It’s important that your objective identifies the people that will be doing the learning.
- **Behavior**: This component will contain your action verb.
- **Condition:** This part of the objective will describe the situation of the participants.
- **Degree of Mastery**: This part of the objective is closely tied to the change in behavior, as it stipulates the degree of the change

- In the following examples, *the audience will be italicized,* <u>the behavior will be underlined,</u> the condition will be in regular type, and **the degree of mastery will be bolded.**

- **Example 1:** At the end of this lecture , the *students* will be able to <u>diagnose an acute case of gouty arthritis</u> **with no errors**.

Example 2: After completing the one-day training workshop, the *participant* will be able to <u>list the 3 steps in writing learning objectives</u> **in order**.

CONDITION | INTENDED AUDIENCE | BEHAVIOR

Following this lecture, the **participants** will **label correctly** the **five** major organs of the female reproductive system.

STANDARD | STANDARD

CONDITION

After attending this training session, a trained **lab technologist** will **correctly conduct** a Western Blot test to detect HIV.

INTENDED AUDIENCE | STANDARD | BEHAVIOR

TAKE HOME MESSAGE

- **Develop reasonable objectives**
- **Simplify your objectives**
- **Take the time to write better learning objectives**

examples

- Original version: *Complete the assignment.*
- **How can we improve this?** This item needs to be a “to-do” list item, not a learning outcome. If your assignment helps to support your course level outcome, then create a learning outcome that describes the purpose of the assignment using a measurable verb.

- Original version: *Explain the benefits of various exercise modalities for an elderly person.*
- **How can we improve this?** This outcome is not student centered. The instructor has described what they are going to *teach* in the lesson, not what they wanted the student to be able to do–which was "determine the most appropriate exercise for a patient."
- Revised version: *Determine the most appropriate exercise modality for health maintenance in the patient who is elderly.*

- Original version: *List types of abnormal pulmonary functions*.
- **How can we improve this?** The verb “list” is in the lowest level of Bloom’s Taxonomy, too low for this 3000 level course. When the instructor thought about what she wanted her students *to be able to do* with their knowledge of pulmonary functions, the outcome became a higher level verb (determine) that was clearly measurable:
- Revised version: *Given the calculated results of tests compared with predicted normal values, determine the presence or absence of abnormal pulmonary function and classify it as to type and severity.*