



TEXAS TECH UNIVERSITY  
HEALTH SCIENCES CENTER

# What do you want them to learn?

Writing Effective Student Learning Outcomes

**Kari Wood, M.Ed.**

*Associate Director for Institutional Assessment  
Office of Institutional Planning and Effectiveness*

Hi, my name is Kari Wood. Welcome to the presentation titled, “What do you want them to learn? Writing Effective Student Learning Outcomes.” This presentation is designed to assist TTUHSC faculty in developing effective student learning outcome statements in their respective academic programs.

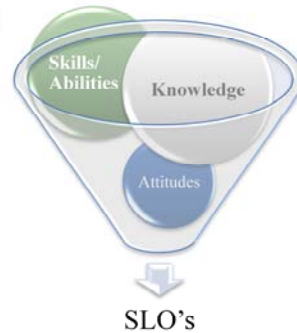
Before we begin, let me say that I used several wonderful resources in the development of this presentation. As much as I’d like to claim these ideas as my own, there are many intelligent authors and educators whose hard work must be acknowledged. A list of those references is provided at the end of the presentation.

## DEFINITION



A *student learning outcome* (SLO) is a specific statement that describes:

- (1) knowledge,
- (2) skills/abilities, or
- (3) attitudes



that students are expected to learn upon successful completion of a course of study.

A student learning outcome (or SLO) is a specific statement that describes the knowledge, skills/abilities, or attitudes that students are expected to learn upon successful completion of a course of study, such as a course, seminar, or certification program. For purposes of this presentation, the course of study will be the academic programs offered at the Texas Tech University Health Sciences Center.

## EXAMPLES



*“Upon successful completion of the program, the student will be able to...”*

*“After completing the program, the learner will be able to...”*



**...communicate effectively through verbal and written discourse.”**

**...conduct comprehensive physical examinations appropriate to patient concerns, symptoms, and history.”**

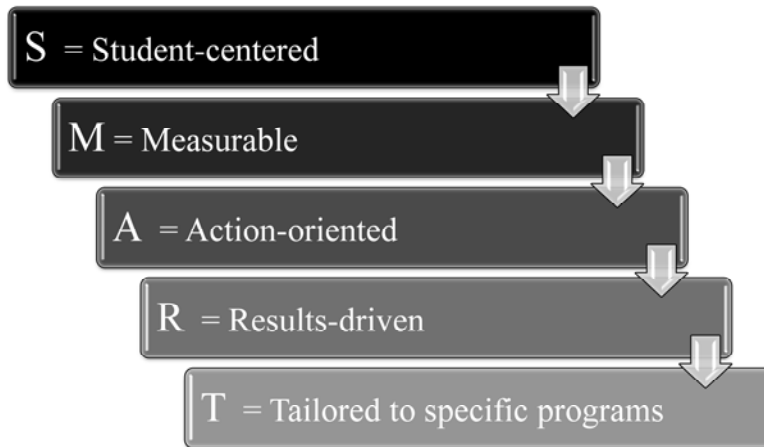
Before I describe the guidelines for writing an effective SLO, let's go over some basics. First, you'll often see some common phrases to introduce the SLO. For example, “Upon successful completion of the program, the student will be able to...” or “After completing the program, the learner will be able to...” or you may see some variation of this wording.

After the introductory phrase, you'll get to the heart of the outcome statement. This is where you describe the specific knowledge, skills/abilities, or attitudes that you expect students to demonstrate once they have completed the program successfully. For example, students will be able to “communicate effectively through verbal and written discourse, OR “conduct comprehensive physical examinations appropriate to patient concerns, symptoms, and history.” The remainder of the presentation will be devoted to the guidelines for writing effective SLO's.

## GUIDELINES



Effective SLO statements are S-M-A-R-T.



There are several things to keep in mind when writing student learning outcome statements. Numerous acronyms have been created for these guidelines, but I like to use the acronym S-M-A-R-T. Effective SLO statements are S=student-centered, M=measurable, A=action-oriented, R=results-driven, and T=tailored to a specific program. Let's talk about each of these guidelines in more detail.

## STUDENT-CENTERED



### SLO's describe...

- what students should know or be able to do upon successful completion of the program.

*"The student will be able to define, explain, and apply key concepts and fundamental principles related to underwater basket weaving."*

**NOT**

- what instructors will do or provide to students throughout the program.

*"Students will be provided with a foundation of knowledge in key concepts and fundamental principles related to underwater basket weaving."*

*SMART*

First, SLO statements are student-centered. They describe what students should know or be able to do upon successful completion of the program. They do NOT describe what instructors will do or provide to students throughout the program.

For example, consider the following outcome: "Students will be provided with a foundation of knowledge in key concepts and fundamental principles related to underwater basket weaving." Even though the term "students" appears in the statement, this SLO indicates what the instructor will do or provide rather than what the student will know or do. A more effective SLO would be, "The student will be able to define, explain, and apply key concepts and fundamental principles related to underwater basket weaving."

## MEASURABLE



**Very simply, can you determine WHAT students are learning and HOW WELL they're learning it?**

- Locally developed exam
- Commercially developed instrument
- Licensure examination
- Performance/product development
- Oral defense
- Survey/questionnaire

*SMART*

The second guideline for writing an effective SLO is to make sure they are measurable. Very simply, can you determine WHAT students are learning and HOW WELL they're learning it?

Some common methods to measure SLO's at the program level are locally developed exams, commercially developed instruments, and licensure exams. These measures are often considered fairly objective and serve as direct indicators of student learning.

Other measures are a bit more subjective. Student learning is often measured by student performances, product development, or oral defenses...to name a few. While these examples can also serve as direct measures of student learning, you often see rubrics being developed to make the process more objective.

Finally, you might also use indirect measures of student learning, like surveys or questionnaires, to measure changes in student attitudes or perceptions.

Lots more could be said about potential ways to measure student learning, but just keep in mind that you must be able to measure a student's knowledge, skills/abilities, or attitudes consistently for each student across time, and the method you use should actually measure what you intend to measure. For example, if a student learning outcome indicates that a student will be able to design and conduct experimental research, then those abilities...to design and conduct research... will be difficult to measure using a multiple-choice exam. This is referred to as alignment. In other words, the measure must align well with the student learning outcome.

## ACTION-ORIENTED



SLO's use concrete, action verbs.

| Cognitive Domain |            |             |               |          |           |
|------------------|------------|-------------|---------------|----------|-----------|
| Define           | Describe   | Apply       | Analyze       | Compare  | Create    |
| Recall           | Explain    | Use         | Examine       | Contrast | Design    |
| Record           | Discuss    | Classify    | Classify      | Critique | Compose   |
| Identify         | Defend     | Demonstrate | Distinguish   | Appraise | Devise    |
| Label            | Estimate   | Interpret   | Diagram       | Assess   | Formulate |
| List             | Express    | Prepare     | Differentiate | Evaluate | Manage    |
| Outline          | Infer      | Produce     | Discriminate  | Judge    | Prepare   |
| Memorize         | Paraphrase | Solve       | Relate        | Rate     | Plan      |
| Match            | Predict    | Translate   | Categorize    | Score    | Propose   |
| Repeat           | Summarize  | Illustrate  | Inspect       | Select   | Construct |

Adapted from Anderson and Krathwohl's (2001) revised version of Bloom's taxonomy

*SMART*

Next, effective SLO's use concrete, action verbs. Doing so helps ensure that outcomes are observable and measurable. The list you see offers a small sample of verbs you can use if an outcome relates to the cognitive domain. The premise of Bloom's taxonomy is that each level becomes progressively more complex and in theory builds upon the previous level. At the level at the far left of the taxonomy, learners are able to recognize and recall information. As students build upon that foundation of knowledge, then they are expected to use that information in new situations and make rational decisions about that knowledge. Thus, at the far right of the taxonomy, you would expect students to be able to create, design, propose, and so on. Remember...these sample verbs do not reflect a comprehensive list of verbs you can use in your SLO's. This list merely offers some of the more commonly used verbs in SLO's.

## ACTION-ORIENTED (cont.)



SLO's use concrete, action verbs.

| Psychomotor Domain | Affective Domain |
|--------------------|------------------|
| Repair             | Justify          |
| Operate            | Propose          |
| Suture             | Share            |
| Dissect            | Express          |
| Calibrate          | Support          |
| Measure            | Defend           |
| Mix                | Influence        |
| Perform            | Question         |
| Assemble           | Verify           |
| Build              | Internalize      |
| Construct          | Relate           |

*SMART*

In addition to writing outcomes related to the cognitive domain, some academic programs might have outcomes related to the psychomotor and affective domains. Because multiple taxonomies exist for each of these domains, this slide simply provides some sample verbs to use within each of these domains.

The psychomotor domain largely involves motor skills with an emphasis on the performance of specific skills. Outcomes in the psychomotor domain are common in health professions education.

The affective domain relates to feelings, emotions, interests, appreciation, and attitudes. Because these outcomes are very difficult to observe and measure, we're seeing less and less attention paid to this domain in education. Nonetheless, the slide offers some sample verbs to use in these outcome statements.

## RESULTS-DRIVEN



### SLO's describe...

- what students should know or be able to do upon successful completion of the program.

**NOT**

- what courses students will take or learning experiences they will have in the program.

*SMART*

In addition, effective SLO statements are results-driven. They describe what students should know or be able to do upon successful completion of the program, NOT what courses students will take or learning experiences they will have in the program.

In other words, student learning outcomes focus on the end, not the means. For example, consider the following outcome statement: Upon successful completion of the program, the student will be able to analyze a case study related to ethical issues. Ask yourself...Is the ultimate desired result for the student to complete a case study? OR is the desired outcome for the student to be able to recognize ethical issues and perhaps behave in accordance with ethical standards of conduct? The case study is simply a means by which you assist the student in making progress towards the desired outcome.

## TAILORED TO SPECIFIC PROGRAMS



SLO's should focus on the most important outcomes for the program, **NOT**...

- 1) individual courses within the program, OR
- 2) units or lessons within specific courses.

---

An ideal number of SLO's for each program is...



...give or take a few!

*SMART*

Finally, effective SLO's are tailored to the program. They should focus on the most important outcomes for the academic program, not on the outcomes for individual courses within the program OR specific units or lessons within a particular course. In other words, the SLO's for the academic programs should not be so specific that they get down to the course level, NOR should they be so general that they look more like school or institutional goals.

Now, just because you establish program-level outcomes and capture those in WEAVE doesn't mean you shouldn't have course level outcomes. As a matter of fact, most faculty communicate course-level outcomes on the course syllabus. Doing so lets students know what they are expected to know or do upon successful completion of a particular course. Just make sure that each of your course-level outcomes align with the outcomes for the academic program.

Finally, an ideal number of SLO's for each program is 5...give or take a few. Some resources say 3-5. Others say 5-8. Anything much less 5 means that your SLO's are too broad. Anything much more than 5 means that your SLO's may be too specific.

## WHAT DO YOU THINK?



1. Upon successful completion of the program, students will be familiar with the important principles, concepts, and theories related to the basic and clinical sciences essential to the practice of medicine.



**Potential Revision:** Upon successful completion of the program, students will be able to identify, explain, and apply important principles, concepts, and theories related to the basic and clinical sciences essential to the practice of medicine.

*SMART*

So far, we have discussed five guidelines for writing effective student learning outcome statements. Effective SLO's are S=student-centered, M=measurable, A=action-oriented, R=results-driven, and T=tailored to a specific program. Using those guidelines, consider the following SLO: "Upon successful completion of the program, students will be familiar with the important principles, concepts, and theories related to the basic and clinical sciences essential to the practice of medicine."

One issue that emerges with this outcome is that it does not use a concrete, action verb, and therefore is not easy to measure. How do you know if students are "familiar with" something?

Consider the following stated revision: "Upon successful completion of the program, students will be able to identify, explain, and apply important principles, concepts, and theories related to the basic and clinical sciences essential to the practice of medicine." The use of the verbs "identify, explain, and apply" make the SLO more measurable. It tells you more specifically what you want students to be able to know or do.

## FINAL THOUGHTS



**Try to avoid phrases like...**

*Be familiar with..*

*Gain an understanding...*

*Demonstrate knowledge...*

**Kari Wood, M.Ed.**

Associate Director for Institutional Assessment  
Office of Institutional Planning and Effectiveness  
kari.wood@ttuhsc.edu  
(806) 743-2918

Just as the phrase “Students will be familiar with” ...may prove to be problematic in student learning outcomes, other problematic phrases include “students will gain an understanding of...” or “students will demonstrate knowledge of...” You’ll want to reserve the verb “demonstrate” for the demonstration of specific skills. The sample phrases discussed above are somewhat vague and result in outcome statements that are not clearly observable and measurable. Always select more specific action verbs if at all possible.

And on that note, I hope you have found this presentation beneficial. If you need additional assistance in developing effective student learning outcome statements, please contact me. I would be happy to work with you individually or with your program faculty on SLO’s or any other issue related to the assessment of student learning.

## REFERENCES



- Angelo, T.A., & Cross, K.P. (1993). *Classroom assessment techniques: A handbook for college teachers* (2<sup>nd</sup> ed.). San Francisco: Jossey-Bass.
- Borich, G. D. (1992). *Effective teaching methods*. Englewood Cliffs, NJ: Merrill.
- Cerbin, W. (2001). *The course portfolio*. Retrieved from <http://www.psychologicalscience.org>. January 4, 2007.
- Diamond, R. M. (1998). *Designing and assessing courses and curricula: A practical guide*. San Francisco: Jossey-Bass.
- Gunter, M.A., Estes, T.M., & Schwab, J. (1995). *Instruction: A models approach*. Boston, MA: Allyn & Bacon.
- Menges, R.J., Weimer, M., & Associates. (1996). *Teaching on solid ground: Using scholarship to improve practice*. San Francisco: Jossey-Bass.
- Palomba, C.A., & Banta, T.W. (Eds.) (2001). *Assessing student competence in accredited disciplines: Pioneering approaches to assessment in higher education*. Sterling, VA: Stylus.
- Palomba, C.A., & Banta, T.W. (1999). *Assessment Essentials: Planning, implementing, and improving assessment in higher education*. San Francisco: Jossey-Bass.
- Suskie, L. (2004). *Assessing student learning: A common sense guide*. Bolton, MA: Anker Publishing Company, Inc.
- Wright, B.D. (1997). Evaluating learning in individual courses. In J.G. Gaff, J.L. Ratcliff, & Associates, *Handbook of the Undergraduate Curriculum*. San Francisco: Jossey-Bass.