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## Workshop Goals:

**1) Teaching vs. Learning goals** – Participants will be able to distinguish between teacher-centered and student-centered learning goals.

**2) Articulate a set of learning goals for a given course/module/unit**– Participants will begin to develop a set of measurable, specific learning goals that

- are in alignment with the overarching themes/goals of the curriculum in which the course plays a part
- and address specific outcomes and expectations for students

## Introduction:

Clearly articulated learning goals are at the center of the learner-centered classroom environment, the “ideal” learning environment envisioned by the authors of the National Research Council’s comprehensive report **How Students Learn**. In the learner-centered environment, the focus has been shifted from teaching to learning, from what must be covered to what a student should be able to do with the material.

Most of us have some set of goals for our students’ learning, at least in the back of our minds. This is especially true when we think about the kinds of questions we ask students on exams. Typically, we ask them to integrate or synthesize information, to transfer and apply knowledge. We ask that they understand the material deeply and *do* something with it to illustrate that understanding. Yet, when we list our goals in the syllabus, we state things in ambiguous or lower-order thinking terms: for example, that we want them to “know” or “learn” or even “appreciate” a particular pathway or concept. Thus, there is typically a disconnect between what we want our students to achieve (what we test for) and what we tell them what they ought to achieve (via our syllabus).

Most of us conceptualize our teaching in terms of our content area rather than in terms of our students’ learning. It feels more natural to focus on the *inputs* (content, instructional materials and delivery, readings/text, guest speakers) than on the *outputs*, what skills and understandings we hope to observe in students who have successfully completed our course. Thinking about our teaching in terms of inputs usually results in our outlining teaching goals (what I will cover in this course and how I will cover it) rather than our goals for student learning (what the student needs to do in order to demonstrate the learnings I desire).

A set of clearly articulated learning goals improves the teacher-student transaction. By providing students with a clearer picture of your intentions, you **enable them to focus on the performances you desire** – what it is you want them to do with all the material you feel compelled to cover. Furthermore, learning goals are the natural starting point for course design (content, activities, strategies), revision, and assessment; so a clearly articulated set of learning goals is beneficial for anyone embarking on any of these projects.

## Learning goals vs. Teaching Goals:

**Teaching goals** describe what you plan to teach (usually broad, vague, multiple meanings to different students). These are generally easy to articulate and are more helpful for the *teacher* in selecting content than for the *student* in understanding what is expected of him/her.

**Learning goals** describe what exactly you hope your students will learn. The difference between the two is more than subtle. **Learning goals are phrased in a way that explicitly informs students what is expected of them (desired results)**. Learning goals are phrased in active terms, and it should be possible to observe the results of achieving the goal. This then allows you to directly link your learning goals for students with your assessments of their learning.

### Learning goals benefit both students and faculty:

- Instructors communicate to their students **precisely what is expected of them**, precisely what is valued most in terms of their learning.
- **LGs improve student understanding**; LGs provide concrete descriptions in student-active terms of how to display (and therefore what to practice in order to gain) understanding.

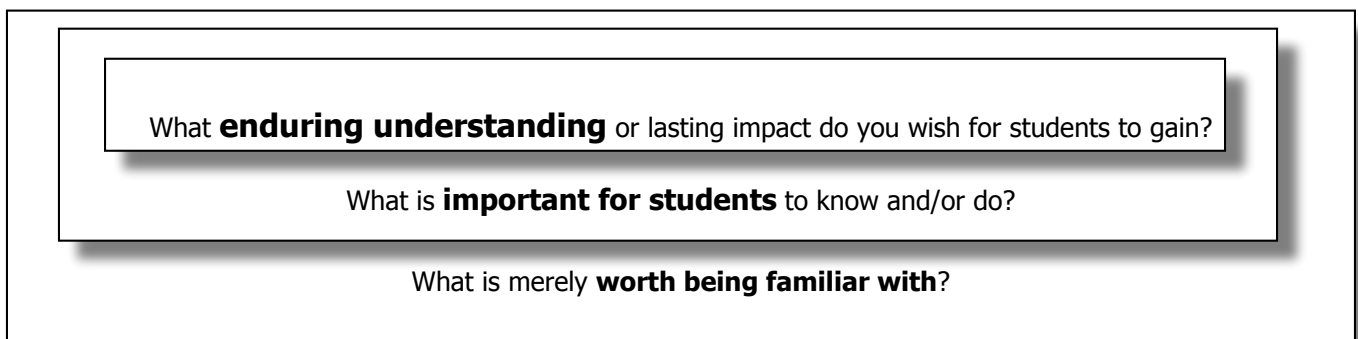
- Students are better able to **self-evaluate** when they know what the instructional priorities are; this also serves to reduce student anxiety.
- LGs provide the same “road-map” for you as they do for your students when it is time to set an examination, facilitating **fairness in both testing and grading**.
- LGs brings course content, teaching strategies and your evaluation of student learning into better **alignment**.
- LGs help you to more precisely **communicate course aims with other faculty** in the curriculum. Students better understand how the course relates to other courses and to institutional goals.
- LGs help you to make **justifiable decisions about what content to cover**, what to leave out, what to emphasize, and what to minimize.

### Setting Goals:

Lectures written with the goal of covering the maximum amount of material in the time allotted **are not effective lectures**. Students learn very little under these circumstances (McKeachie calls this “mental dazzle”). You must therefore make hard choices about what content to include. Setting goals will help in making these selections.

The following approach can be used to set goals for any instructional piece – a course, module, unit or lecture. **Consider both the content and the skills** that you hope your students will take away from the piece (or your portion of the course). Students’ background, prior knowledge, and the likelihood that they will continue in the field all play an important role in helping you to select the content of the piece and the level at which it is delivered.

**STEP 1:** Consider the body of material covered by your topic and divide it into at least three categories:



**“Enduring understandings” should provide the overall framework for the instructional piece –**

These are the “Big Ideas,”  
 the “Organizing Principles,”  
 the “Core or Essential Questions” that help define and structure the field.

**Think to yourself,**

“What are the Take Home Messages that I hope students will still remember five years from now?”  
 “What *outcomes* do I hope to achieve with this lecture, what are the *desired results*?”

**These are the foci of your instructional piece.** Once you’ve defined these “Big Ideas”, develop the rest of your learning goals for the instructional piece around them. **Ask yourself:**

What is important for students to know in order to fully understand my “Big Ideas?”  
 What is important for students to be able to do with these understandings in order to progress in the field?

BE REALISTIC about how much is reasonable to expect students to grasp in the time allotted for a given lecture.

**Give it a try: What do you most value in terms of the content knowledge and skills you desire students to obtain from your instructional piece?** Try to prioritize and categorize your responses around Big Ideas in your field (for program or course level goals) or topic (for unit or lecture level goals). If you are struggling to make selections here, some possible entry points are:

- What are the central, organizing themes in your field?
- What you consider to be the most conceptually challenging aspects of your subject?
- common misconceptions that students have about your subject
- methods/approaches inherent to your discipline
- what you would like to see happening in your course that is currently not happening
- what students need to gain from this course in order to progress to the next level.

### **STEP 2. Consider what *Mastery* of those Big Ideas looks like.**

- Easy and flexible retrieval of facts and concepts from memory?
- Ability to demonstrate deep understanding of concepts and themes? ***What does "deep" understanding in your field look like?***
- Ability to integrate new concepts and themes, to apply them to new situations?  
(Consideration of Bloom's Taxonomy and the SOLO Taxonomy may be useful here)

It is important that you have a good sense of who your students are, what their backgrounds are like and whether these meet the prerequisites of the course. If our goal in educating students is to help students achieve *mastery*, then ***we need to consider what mastery looks like in our field as well as the kinds of skills required to achieve mastery.***

**Give it a try: What do you most value in terms of the learning skills that lead to mastery in your field?** What will you accept as evidence that a student has mastered content? Possible entry points:

- Consider "where" your students are at when they enter the course and "where" you want them to be by the end of it.
- What do you do as an expert in your field, that demonstrates mastery/understanding
- If I were a student in your course, what would I have to do to convince you that I "get it?"

The above steps (1-2) are modeled after the "Backward Design" approach to curriculum design. This approach starts with prioritizing realistic learning goals (outcomes), considers what mastery of those goals looks like (how will you assess mastery?), and then designs learning and classroom experiences that help students to achieve those goals. Wiggins and McTighe (1998).

**STEP 3.** The next step is to merge your lists above into a **list of learning goals with measurable, observable outcomes.** For every item listed under #1, think about what mastery of that item might look like and consider the following guidelines from TEDI (2006):

- Each goal should be concise, and it should be possible to **observe the results of achieving it.**
- Each goal should be expressed as something the **student** might achieve – not as what the **teacher** will do.
- **The verb is crucial in stating a learning goal.** Verbs such as “understand”, “realize” and “be aware of” should be avoided since they describe behavior which is not observable. Vague or ambiguous verbs such as “know” should also be avoided. For “know” you might substitute “define”, “list”, “apply”, “extrapolate from” or other more precise words. For the “unobservable” words try using verbs that show how the understanding (for example) would affect the student’s behavior.

Words Open to Many Interpretations

- To know
- To understand
- To really understand
- To appreciate
- To fully appreciate
- To grasp the significance of
- To enjoy
- To believe
- To have faith in

Words Open to Fewer Interpretations

- To write
- To recite
- To identify
- To sort
- To solve
- To construct
- To build
- To compare
- To contrast

From Diamond (1998). See the Bloom’s Taxonomy handout for further for suggestions.

- **Try to keep to one learning goal per statement.** This makes for clearer statements. In this case the touchstone is clarity. The goal must be intelligible to students of the course on the first reading.
- One way to approach this is to fill in the blanks: **“Given X, students should be able to do Y.”**

The guidelines offered under #3 and some of the examples below come from the Teaching and Educational Development Institute (TEDI) of the University of Queensland, Australia  
<http://www.tedi.uq.edu.au/teaching/assessment/learningGoals.html>.

### Examples:

**An example** from an Introductory Biology course:

Poor: "To teach students about ecological interactions and how they lead to evolutionary change."

Improved: "Students will learn about several important ecological interactions (predation, herbivory, competition and mutualism) and will be able to provide a microevolutionary explanation of how each example can lead to evolutionary change."

**An example** from an introductory Genetics course:

Poor: "Understanding the basic concepts of cell division, genetic material, inheritance, populations and evolution." *This is a better description of the course's breadth than a learning goal. What are the "basic concepts" that the instructor most values?*

Improved:

"Students will be able to diagram, compare, and contrast the processes of Mitosis and Meiosis. Students will explain Mendel's Laws of Segregation and Independent Assortment as they apply to gamete formation using appropriate terminology."

"Students will be able to solve monohybrid - trihybrid genetics problems involving each of the dominance hierarchies discussed in class, and make predictions about offspring genotypes and phenotypes using the rules of probability."

An example of a **general and vague set of learning goals** from a basic computer science course:

"We have three primary goals for this program:

- You will acquire concepts, skills, strategies and attitudes which enable you to become independent learners about computers.
- You will be aware of the capabilities and limitations of computing technologies, and be able to identify problems appropriate for computer solution.
- You will be able to select applications software and use it competently to solve problems specific to your field of study. Some examples are word processing, spreadsheets, databases and electronic mail. You can read more about these goals in your Student Handbook."

An **example of a good set of learning goals** from an occupational therapy course:

"On completion of this course students will be able to:

- Select, describe and apply a range of assessment approaches for children and adults with neurological, musculoskeletal, developmental and emotional conditions.
- Select, justify and design appropriate treatment approaches and activities for children and adults with neurological, musculoskeletal, developmental and emotional conditions.
- Demonstrate clinical problem solving skills related to assessment, interpretation and treatment design.
- Demonstrate techniques of assessment and develop treatment programs for children and adults (with supervision).
- Use appropriate verbal and written communication skills in clinical settings."

An **example of a good set of learning goals** from an engineering course (on communication):

"At the completion of this course, you should be able to:

- Define and explain the two basic rules of communication

- Demonstrate your understanding of these rules in your own written and verbal communication
  - Devise and confidently deliver clear written and oral proposals and reports
  - Identify and analyze problems in your communication and work towards solving these
  - Evaluate other people's written and oral communication skills
  - Analyze your audience and communicate appropriately
  - Adapt to working in teams of different people
  - Apply basic engineering methodology to define and solve problems"

### What Next?

One of the major benefits of learning goals is that they provide a map to the course for you, your students, and other faculty teaching in your curriculum. This then sets the stage for course and program improvements through better alignment:

1. **Alignment between learning goals and assessment.** You have already spent some time thinking about your assessments in the process of setting your goal. You've targeted the content and skills that you wish for students to understand and at which cognitive level. You've outlined the various performances that will "count" as evidence for that understanding. Designing assessments that directly test whether students have achieved the learning goals that you set out for them should follow naturally from this process. The TEDI website provides a number of useful resources to get you started here.
2. **Alignment between learning goals and learning experiences.** Review and select learning experiences and teaching strategies that target your learning goals for students, that give them practice processing material in the ways that you desire, and that provide opportunities for you to feedback to your students on their progress. Consider attending one or all of the seminars in the upcoming **Symposium on Teaching for Understanding** hosted by the Department of Biology (website: <http://cndls.georgetown.edu/events/symposia/TFU/>) or the **Effective Lecturing** workshop sponsored by the SoM FDC.
3. **Curricular or program alignment.** Learning goals offer a means for faculty to communicate what students are learning at each level of a program. They can be used to define relationships among courses and between courses and the overarching themes/goals of the program. This then facilitate coordination and step-wise development of longer-term goals that can connect one year of the program to the next. To discuss questions on program or curriculum design and assessment contact CNDLS.

### References:

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