

WRITING STUDENT LEARNING OBJECTIVES

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BOOKLET

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Deanship of Skills Development

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جميع حقوق الطبع محفوظة

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Be clear about what your own educational objectives are, and be sure that your students are clear about them as well. If you do not know where you are going, the likelihood that you will get there borders on randomness. (Brewer, 2010, p. 3)

Imagine beginning a long journey by automobile—would you simply venture forth with only a vague idea of where you were going? That possibility seems unlikely—instead, you would probably consult a map or an online site such as MapQuest in order to get driving directions. Even worse, imagine someone under your care such as a son or daughter making such a trip—would you allow that person to begin a trek without guidance? Again, that possibility seems preposterous. However, some faculty behave in just that manner about their courses. Brewer’s quote makes it clear that teaching a class without first developing learning objectives is just as pointless as beginning a trip without directions. How can we, as faculty, hope that students achieve our desired outcomes if we fail to spell out those outcomes for both ourselves and our students? If we do not know our desired outcomes, it is impossible to assess whether our students have achieved them. If students do not know what we expect of them, it is difficult or impossible for them to achieve our outcomes. Writing student learning objectives is a process that is designed to clarify our learning goals to both our students and ourselves.

Before covering learning objectives, it is necessary to cover a bit of vocabulary. Some people use the terms learning goals and learning objectives synonymously. However, faculty who work with assessment a good deal usually differentiate

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between those two terms. Learning goals are broad umbrella terms that subsume learning objectives. Thus, learning goals are broad statements of what students should be able to do when they finish a course, a major, or a degree. For example, you may want students to “show evidence of critical thinking” when they complete your course. Certainly thinking critically is a laudable and popular goal that college faculty may have for their students. Because learning goals are broad, which often also means vague, they are difficult to measure easily. The term “critical thinking” is definitely a broad term; what one faculty member means by critical thinking may differ from another faculty member. If one conducted a literature search on measures of critical thinking, there might be hundreds of possible measures available. Thus, critical thinking is difficult to measure because it has so many possible dimensions and measurement possibilities.

In order to assess whether my students actually show evidence of critical thinking, I must decide what I mean by that term. It is at this point that learning objectives become relevant. A learning objective is a specific measure that is used to determine whether students are achieving a learning goal. Thus, in order to evaluate my learning goal of critical thinking, I must have a specific measure that is demonstrative of critical thinking. Suppose that I believe that critical thinkers can identify inherent biases and assumptions (Smith, 2002). The ability of students to identify inherent biases and assumptions thus becomes the learning objective I will measure in order to determine whether my students can think critically. Notice how much more specific the learning objective (identifying inherent biases and assumptions) is than my learning goal (thinking critically). That specificity also means that measuring the objective will be easier than attempting to measure the goal. If I asked several faculty to each develop a measure of identifying inherent biases and assumptions, their measures would likely be much more similar than if I asked them to develop a measure of critical thinking.

It is often the case that a learning goal may have multiple components. Thus, it is possible that I might have several specific student behaviors that I believe all go together to represent critical thinking. In this case, I would need to develop a learning objective to represent each specific behavior. To assess critical thinking, I would have to assess all the component parts of critical thinking and then combine them. As academics, many of the goals that we wish to measure in students are complex combinations of smaller behaviors and abilities. If we attempt to develop one measurement to assess the goal, we will often become frustrated at that task’s difficulty. If, however, we break the goal down into its smaller parts, we can develop

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measures for each of those parts and then combine them in some way to arrive at an assessment for the entire goal. Thus, you might believe that identifying inherent biases and assumptions is only one component of critical thinking. You might also want students to maintain an air of skepticism, separate facts from opinions, and use logical inference processes (Smith, 2002) to be considered critical thinkers. In this case, you would need to measure their ability to show these four behaviors in order to know whether they have achieved your learning goal of becoming critical thinkers.

Thinking About Student Learning Objectives

Before you begin to write learning objectives for your students, you should engage in some planning. Given that learning objectives should naturally flow from learning goals, the first step should be to ensure that you have learning goals for your course.

Learning Goals

All faculty have learning goals for their courses, regardless of whether they have actually written them. If you are serious about determining whether students are meeting your learning goals, you definitely need to compile those goals. Sometimes when you are teaching a course, you may have learning goals provided for you. Often, particularly for lower level courses that many faculty teach, the department will have spent time developing learning goals for a course. In this case, all sections of that course would have the same learning goals. As the instructor of a particular section, you might have the freedom to add to the department's learning goals, but you could not omit any of them. If the department has developed learning goals, the faculty may have even developed learning objectives and assessments with which to measure those objectives.

You may, however, be teaching a course that you alone teach and for which you need to develop learning goals. Fortunately, developing learning goals is a relatively simple task. Think about the types of big outcomes you would like to see in students—for example, the earlier example of “thinking critically”. Suskie (2009) likened learning goals to the end rather than the means or the outcome rather than the process. Cangelosi (2000, p. 51) defined a learning goal as “specifying what students will learn if the teaching unit is successful”. Cangelosi pointed out, however, that students must acquire a number of specific competencies in order to reach the

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goal. As Landau (2002) noted, “The goal is where we want to be. The objectives are the steps needed to get there” (<http://www.roundworldmedia.com/cvc/module4/notes4.html>). After developing your learning goals, you will specify the competencies by developing your learning objectives.

Suskie (2009) pointed out that you can write learning goals without having in mind exactly how you would measure them. Again, the measurement process will take place at the level of learning objectives rather than learning goals. Looking at two examples that Suskie provided may remove some of the mystery about learning goals. For example, a faculty member who taught design wanted to help students “analyze a design problem” (Suskie, 2009, p. 19). A speech pathology professor wanted students to be able to “synthesize information from various sources to arrive at intervention tactics for the client” (Suskie, 2009, p. 19). Notice that it would be quite difficult to measure either of these goals in a one-step measurement process—the behaviors specified are global, diffuse, and multi-faceted.

If, after reading this information, you remain uncertain about your learning goals, you may wish to look for outside help. One major way to develop your learning goals is to be in touch with your teaching goals. If you have developed a teaching philosophy, you have likely analyzed your teaching goals and included them in that philosophy. If you have never developed a teaching philosophy, you could consult the literature about how to do so. A quick Google search turned up a wealth of documents and books on teaching philosophy. You could also consult with colleagues to find people who have worked on developing a teaching philosophy to get pointers from them. Finally, you could take a test that helps you determine your teaching goals (Angelo & Cross, 1993). An online version of this test is also available (http://fm.iowa.uiowa.edu/fmi/xsl/tgi/data_entry.xsl?-db=tgi_data&-lay=Layout01&-view).

Another strategy for developing learning goals is to conduct an online search for course syllabi that match your course. The faculty who developed those syllabi may have listed their learning goals on those documents. Of course, you should be cautious in borrowing learning goals from other faculty’s syllabi—make sure that you actually do endorse any learning goals that you find before listing them as yours.

After you have developed your learning goals, you must break those broad goals into more specific measureable learning objectives. One good starting point for developing learning objectives is to consider the various types of behaviors specified by those objectives. There are several classification schemes for such behaviors—the most well-known is probably Bloom’s taxonomy (1956).

Bloom's Taxonomy

One of the most famous and widely used methods of developing learning objectives comes from Bloom's (1956). Bloom developed a taxonomy of thinking skills typically required in academic environments ranging from lower to higher order skills, as shown in Table 1.

Table 1
Bloom's (1956) Taxonomy of Thinking Skills and Common Verbs
That Denote Each Skill

Higher Order Thinking Skills

Evaluation (appraise, critique, interpret, support).

Synthesis (categorize, revise, combine, generate).

Analysis (contrast, differentiate, distinguish, break down).

Application (demonstrate, use, predict, show).

Comprehension (explain, generalize, interpret, paraphrase).

Knowledge (define, describe, list, recall, recognize).

Lower Order Thinking Skills

Lower levels of Bloom's taxonomy involve knowing factual-type information, whereas the higher levels require deeper learning so that students can actually work with the material that they have learned. One of the key elements in writing learning objectives is deciding the cognitive level at which the student learning should take place. If your learning objectives and teaching approach do not align, students will be surprised by your exams, will likely perform poorly, and will have negative emotions about the exam (and/or your teaching). For example, if you have stressed facts throughout your teaching and then ask students to critique a theory on an exam, it would be surprising if students could do well at that task. Thus, it is imperative that you develop your learning goals and then learning objectives—then you must teach at a level that is appropriate to your learning objectives.

To help make Bloom's taxonomy more concrete with regard to assessing student learning, many authors have noted that one can use verbs to list specific

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behaviors that students should be able to accomplish based on the level of the cognitive taxonomy they have achieved. For example, students who have learned material at the knowledge level should be able to complete exams that ask them to define, describe, list, recall, recognize, and so on. If you find yourself writing exam items that use these verbs, you are likely using learning objectives that aim at the knowledge level. Even if you have not formally thought about and written your learning objectives, you are acting on them when you write exam items. Table 1 lists common verbs associated with each level of Bloom's taxonomy. If you use these (or similar) verbs when writing learning objectives, you can determine the level of your learning objectives, which will allow you to know whether you are meeting your learning goals. (This list of verbs is by no means comprehensive. If you want more examples, a quick Internet search on "Bloom's taxonomy" will reveal many more.)

Bloom's Revised Taxonomy

Almost 50 years after Bloom (1956) developed his taxonomy, a former student and a former colleague of Bloom's revised the taxonomy to reflect more current thinking about teaching and learning—particularly conceptualizing learning as a more active and cognitive process (Anderson & Krathwohl, 2001). As shown in Table 2, one of Anderson and Krathwohl's major revisions was to reduce the focus on the type of knowledge attained to place more emphasis on the process of knowledge acquisition. A comparison of Tables 1 and 2 reveals that the words in Table 2 are much more representative of skills (verbs) than are the words that.

Table 2

Anderson and Krathwohl's (2001) Revision of Bloom's Taxonomy (1956)

Higher Order Thinking Skills

Creating (appraise, critique, interpret, support).

Evaluating (categorize, revise, combine, generate).

Analyzing (contrast, differentiate, distinguish, break down).

Applying (demonstrate, use, predict, show).

Understanding (explain, generalize, interpret, paraphrase).

Remembering (define, describe, list, recall, recognize).

Lower Order Thinking Skills

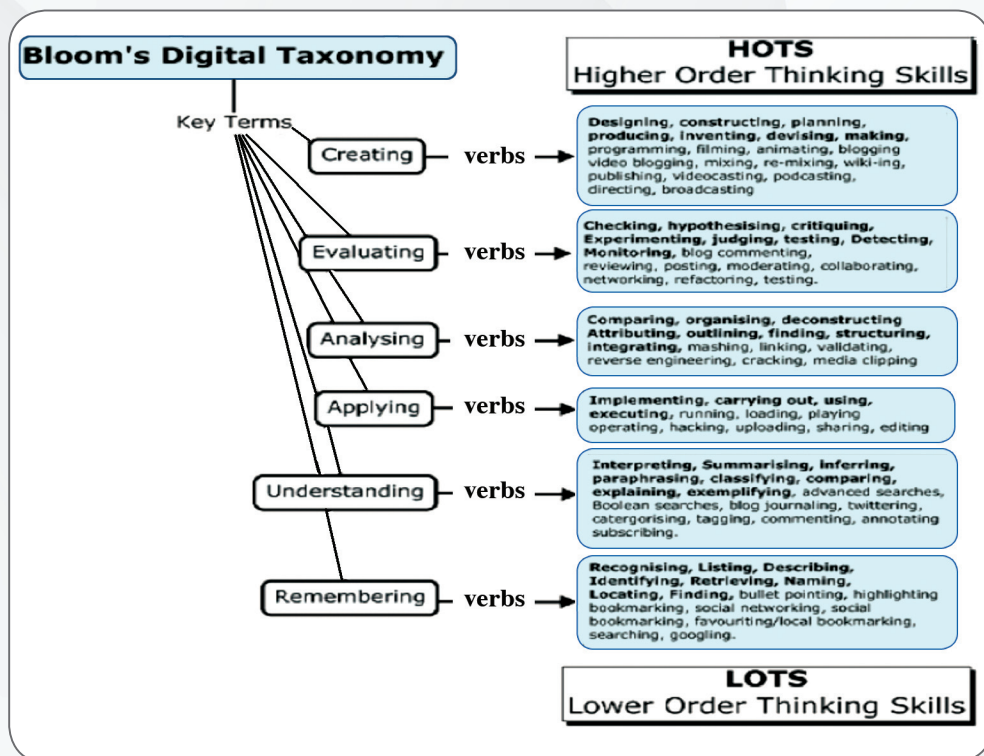
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represent type of knowledge (nouns) in Table 1. Anderson and Krathwohl changed this emphasis by switching the domain names from nouns to verbs (see Table 2). Thus, instead of a student having knowledge, Anderson and Krathwohl referred to a student remembering. Their highest two cognitive domains were also changed from Bloom's previous formulation, as they listed Evaluating as the second-highest skill and Creating as the highest skill—essentially a reversal of Bloom's original listing. The logic for this reversal seems reasonable: One must be able to evaluate an idea or materials before creating new ideas or materials, but it is not necessary to create before evaluating.

Bloom's Digital Taxonomy

In recognition that the educational world has changed since Bloom (1956) first proposed his taxonomy, Churches (2008) developed a digital version of Bloom's taxonomy, shown in Table 3. Both the six levels of thinking skills and their order match those of Anderson and Krathwohl (2001). The unique contribution that Churches made was to add the notion of

Table 3
Churches's Digital Version of Bloom's Taxonomy



From <http://edorigami.wikispaces.com/Bloom%27s+-+Introduction>

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students learning digital thinking skills within the traditional levels that Bloom proposed. Thus, students might engage in the digital behaviors of bullet pointing, social networking, searching, or Googling at the Remembering level. To perform at the highest digital level, students must engage in behaviors such as programming, podcasting, wiki-ing, or blogging (among others). If you value digital learning for your students, it is likely that you will find the additions Churches made to Bloom's taxonomy quite helpful in developing learning objectives for your students.

Developing Student Learning Objectives

The key point in making the transition from student learning goals to student learning objectives is remembering that learning objectives must be concrete and measurable. For example, you might have a learning goal that your students should be computer literate. Such a goal is an admirable goal—one that should help guarantee that your students are up-to-date and conversant with technology. However, that learning goal would be quite difficult to measure without breaking it into more discrete learning objectives. How can you teach your students to be computer literate? To teach computer literacy, you must break that goal down into smaller behaviors. So, for example, you might develop a learning objective that “Students should be able to describe how to access the Internet from a computer”. Is accessing the Internet on a computer the only skill that is necessary to evidence computer literacy? Of course not. However, if students cannot access the Internet, probably no one would consider them to be computer literate. Thus, accessing the Internet is a component of computer literacy—and it is a discrete behavior that is quite simple to measure and assess, which makes it a good learning objective.

As you develop your student learning objectives, it is helpful to remember the various taxonomies reviewed previously and the emphasis they placed on verbs. Learning objectives should specify behaviors that students will exhibit—they must *do* something to demonstrate that they have learned new information. Also, you should remember that the specific verb used in a learning objective helps determine the cognitive level at which a student learns the material that you want learned. Therefore, if you value your students learning at higher orders, you must use verbs that require higher order learning. If you write learning objectives that require students to define, describe, name, list, and so on, they will *not* be learning higher order thinking skills regardless of what you want. In these cases, students will simply be remembering material rather than evaluating the material or creating new material from what they have learned.

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Suskie (2009) provided four pointers for writing good learning goals. By changing these guidelines slightly, I have revised them into pointers for writing good learning objectives. Keep in mind that Suskie pointed out that writing good learning goals does not come easily to all faculty nor even to all disciplines. The same is true of writing good learning objectives.

Focus on the Means to the End

Good learning goals focus on the destination whereas good learning objectives focus on the pathway to the destination. As you work to devise learning objectives from one of your learning goals, think about the steps that students must take in order to reach that goal. For example, if I want my students to compute statistical analyses of averages to determine whether two samples of research participants are significantly different, one learning objective that students must master is the ability to calculate an average. Although students might have learned to compute an average during the first unit of the course, they must retain that knowledge and ability to a later unit of the course in order to be able to meet the learning goal that incorporates that ability.

After you have identified the discrete steps that students must take in order to reach a goal, you should translate each of those steps into a learning objective. Thus, one learning goal could have several learning objectives—this is the process by which you take a broad, nonspecific learning goal and turn it into learning objectives that are precise and measurable.

Clarify “Fuzzy” Terms in Your Goals

Whereas goals such as thinking critically, writing proficiently, or appreciating a particular discipline are laudable goals, they are extremely difficult to measure. Although it is acceptable to use vague terms in learning goals, you must avoid vagueness in learning objectives. Imagine several faculty members in a department who all share the goal of students writing proficiently. What is the likelihood that all of these faculty share the same definition of writing proficiently or that they would teach students to write proficiently in the same manner? I suspect that likelihood is not very great. However, if these faculty share the same learning objectives, they likely share the same definition of writing proficiency. Thus, if part of their definition of writing proficiently involves avoiding passive voice, they should develop a learning objective of students learning to write without using passive voice. Think how much easier it is to teach (and measure) students to avoid passive voice than it is to teach (and measure) students to write proficiently.

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Avoid Overly Specific Objectives

Although learning objectives need to be specific compared to learning goals, it is possible to overdo the specificity. Perhaps because faculty become preoccupied with the need to be able to measure student performance on the objectives, they may become overly precise and narrow in developing learning objectives. Thus, although learning to write proficiently involves using punctuation correctly, it is probably overly specific to have a learning objective dealing with commas, another objective about semicolons, and so on. As Shulman (2007, p. 24) wrote, “the price of precision is the narrowness of scope” .

Use Concrete Action Words

Using concrete action words will help avoid the vagueness problem mentioned earlier. Action words also focus attention on *what* the students need to do to achieve the learning objective. Although I have not previously mentioned sharing learning objectives with students, that process is one of the sound teaching practices that can (and should) be paired with developing learning objectives. Look back at the opening quote from Brewer for a reminder. It is sound educational practice to share your learning objectives with students so that they know exactly what is expected of them. As Brewer pointed out, if students do not know what is expected of them, it is difficult for them to reach our expectations for their learning. It is now standard in many textbooks to begin each chapter with a list of student learning objectives so that they know exactly what they should learn from the chapter before they read it. Cognitive research has shown that it is much more effective to prime readers with relevant information before reading material than afterward (e.g., Bransford & Johnson, 1972).

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At this point, you should be actually ready to write your student learning objectives. Again, remember that your starting point should be one of your learning goals. A good way to get started is to choose the learning goal that you believe to be the narrowest goal that you have; because of its narrowness, it will likely have the fewest learning objectives associated with it. After selecting a learning goal, list all the behaviors that you believe are necessary to achieve that goal. Using examples that I have previously cited (although these are not narrow learning goals), what behaviors do you believe are essential to thinking critically or writing proficiently? Once you have listed those behaviors, you should turn each of them into a learning objective using the guidelines covered in the previous sections.

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How will you know if the learning objectives you are writing are workable? Probably the primary problem that faculty have when they begin writing learning objectives is ensuring that they are measurable—it is easy to write an objective that is more akin to a learning goal. The truest test of whether they are indeed measurable, of course, comes in using them in a class with students. Just as with writing test items, it is difficult to know for certain whether a learning objective will truly work until you attempt to use it. However, you should also attempt to evaluate your objectives as you write them. Landau (2002) has provided some guidelines (see Table 4) in her online material about developing an effective online course, although her principles are not specific to online courses only. These guidelines will help you keep foremost in your mind the crucial nature of measurability of your objectives.

Table 4

Landau's Rubric for Evaluating Learning Objectives

	Competent Work	Common Mistake	Needs to be Revised	Missed the Point
Objectives are measurable	Objectives are measurable and include specific information about what the student will be able to do (e.g., how well, how many, to what degree).	Objectives are too general and don't include specific information on what the student will be able to do (e.g., how well, how many, to what degree).	Objective are not measurable. Objectives don't describe what the student will be able to do.	Objectives are not universally measurable and do not include what the student will be able to do.

From Landau (<http://www.roundworldmedia.com/cvc/module4/4nrubric.htm>)

If you still find yourself having difficulty writing learning objectives after reading this material, there are some outside sources to which you can turn. I have found an online program that provides valuable guided practice in writing learning objectives (<http://www.radiojames.com/ObjectivesBuilder/>). The RadioJames site provides a brief but excellent tutorial that reviews the notion of learning objectives, gives an overview of Bloom's (1956) taxonomy, and provides an introduction to the Objectives Builder online program. One of the nice features of this program is that it ties building objectives directly to Bloom's taxonomy.

In the program, you first select the level of Bloom's (1956) taxonomy for which you want to write a learning objective. Once you select a taxonomy level, a summary of

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that level appears, along with a list of appropriate verbs and examples of objectives written at that level. When you click on a particular verb, it appears in a text editing window, preceded by the phrase “At the end of this lesson, you will be able to:” so that you can write learning objectives in the window. After writing objectives, you can copy and paste them into Word documents or print them.

Using the RadioJames program provides a nice introduction to writing learning objectives based on Bloom’s (1956) taxonomy. Once you are familiar with the process of writing learning objectives, you could write additional learning objectives based on Anderson and Krathwohl’s (2001) update of Bloom’s taxonomy or Churches’s (2008) digital version.

Summary

Although some faculty members dismiss the task of writing learning goals and objectives as simply “busy work” or a hurdle that they have to jump, writing these documents is crucial to a well-planned course, unit, or even lesson. Having well-thought-out goals and objectives allows faculty to determine their priorities for student learning and allows students to know their instructor’s priorities for what they should learn.

In closing, the important points to take away from this booklet include the following:

- Writing student learning objectives helps both faculty and students know the direction they should take in their teaching and learning.
- Learning goals are broad statements of what students should be able to do when they finish a learning experience.
- A learning objective is a specific measure that is used to determine whether students are achieving a learning goal.
- Bloom’s (1956) taxonomy is one of the most famous and widely used methods of developing learning objectives—it lists different levels at which students might learn information.
- Anderson and Krathwohl (2001) compiled a revision of Bloom’s (1956) taxonomy, reducing the focus on the type of knowledge attained and placing more emphasis on the process of knowledge acquisition.
- Churches (2008) developed a digital version of Bloom’s taxonomy due to the changing nature of education.
- In comparison to student learning goals, which are broad and somewhat vague, student learning objectives must be concrete and measurable.

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- To write student learning goals, you should focus on the means to the end, clarify “fuzzy” terms in your goals, avoid overly specific objectives, and use concrete action words.
- In writing student learning goals, list all the behaviors that you believe are necessary to achieve that goal and turn each of them into a learning objective.
- For concrete help in writing student learning objectives, you can use Landau’s (2002) rubric for evaluating learning objectives or the RadioJames online tutorial.

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