WRITING EFFECTIVE LEARNING OUTCOMES

Webinar 09/22

Exploring Backward Design

Backward design = a framework for designing instruction that suggests:

1. Identify desired results
2. Determine acceptable evidence
3. Design activities that will make the results happen

Hi everyone! We're going to begin our discussion of learning outcomes with a little bit of explanation around the concept of backward design, which helps to inform how we design instruction. Backward design has three principle tenets as outlined on the slide:

1. First, we need to determine what we want students to be able to do upon completing a class or program of study
2. Next, we figure out what students will have to do to demonstrate that they've achieved the results
3. Finally, we create learning experiences that will foster the skills and knowledge students need to achieve the results

For the purposes of this webinar, we're going to focus on the first step of backward design: identifying the desired results, or "learning outcomes," and why that's important for students and the college in general.

Identify the Desired Results: Learning Outcomes

First… what is a learning outcome?

Why is it important?

A learning outcome is a statement of the knowledge, skills and/or abilities, or dispositions that students should have upon completing a course or degree program. Outcomes are often also known as learning objectives or learning goals.

This is important for students for several reasons: first, it tells them very explicitly what will be expected of them, and what they can expect to be able to do when they finish. Second, it allows the instructor to provide specific, targeted feedback with regard to the student's performance. Third, well-written outcomes should give students a good idea of the type of work they'll be expected to do upon graduation from their program. Finally, well-written outcomes should easily inform the rest of the course development process. In addition, outcomes may be tied to ("aligned with") accrediting agency standards for proving the course or program (and therefore the students) meets those standards.

Characteristics of Effective Learning Outcomes

Student-centered

Authentic and specific to the field of study

Measurable

“Student centered” means the outcome is written to reflect what the student would be expected to do or know at the end of the course or program. When writing outcomes, you can ensure student centeredness by imagining that you are prefacing each one with the words “Student should be able to…”

When we say “authentic and specific to the field of study,” we mean the outcomes should represent work that would be reasonably expected of the student at the level they’re at, when they finish either the course or the program, and enter the field. We should be able to tell from looking at the outcome what the field of study is; that is, we should be able to tell a public health outcome apart from an information technology outcome.

Measurable means observable: Outcomes should contain a cognitive performance that can be observed and measured by a specific means of assessment. For example, we don’t consider the word “understand” a measurable cognitive performance because we have no way to observe the extent to which a student is understanding something - we can’t peer inside their brains to determine their level of “understanding.” Avoid words and phrases such as “understand,” “appreciate,” “explore,” “demonstrate an understanding of,” or “demonstrate the ability to,” and so forth. Instead, consider using a verb that indicates the specific action the student would perform to demonstrate that understanding, such as “analyze,” “create,” or “compare.”

Characteristics of Effective Learning Outcomes

Appropriate in scope and rigor

Simple, declarative sentences

Contains single cognitive performance that can be assessed using a single method

In terms of scope and rigor, we want to ensure the cognitive performances we are asking of students are appropriate for the level of study they've achieved. As a rule, outcomes should be, at a minimum, at the "Application" level of Bloom's Taxonomy and higher, and for grad students, preferably at the "Analysis" level and higher. We'll include a link to resources on Bloom's with the supplemental materials.

Outcomes should be written as simply as possible to make their intent clear to both students and faculty.

Each outcome should contain one primary cognitive performance that can be assessed using a single method. In other words, a student's analysis of research would be assessed differently than how they communicate that information to a given audience, so it would be inappropriate for an outcome to be written as "Analyze and communicate research about something."

Ready for a POP QUIZ?

Which of the following outcomes is most effectively written?
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1. Ensure students understand how to analyze, evaluate, and apply the range of tools needed to implement new technology, including identifying, evaluating, selecting, implementing, and upgrading technological systems.
2. Propose practical strategies for implementing health information technology solutions that meet the needs of healthcare organizations.

We're going to launch a poll that asks you to vote for Outcome #1 or Outcome #2. Based on what we've discussed so far, tell us which you feel is most effectively written.

Let's Discuss...

Outcome #1: "Ensure students understand how to analyze, evaluate, and apply the range of tools needed to implement new technology, including identifying, evaluating, selecting, implementing, and upgrading technological systems."

1. Is it student-centered?
2. Is it authentic and specific to the field of study?
3. Is it measurable?
4. Is it appropriate in terms of scope and rigor? Is it a simple, declarative statement?
5. Does it contain a single cognitive performance that can be assessed using a single method?

1. Not really. It actually dictates what we expect the instructor or facilitator to do (ensure students understand), as opposed to what we would expect the student to be able to perform.
2. Well...while the performances described in this outcome may indeed be authentic to *a* field of study, it's impossible to tell for *which* field they are authentic. Outcomes should be written to be high-level, bird's-eye view of the program or course, but still be specific to the discipline.
3. There are some (actually, MANY!) measurable (that is, observable) performances described in this outcome, but "ensuring that students understand" is not. How would we know students understand? We can't say that this is a measurable outcome.
4. The way the outcome is written, we would be asking students to "analyze, evaluate, and apply…," "implement," and "...identifying, evaluating, selecting, implementing, and upgrading…" While these are all likely performances we could expect of a student upon graduation, it's A LOT. And consider this: Is there anything we've left out? Or, what if students do something that's **not** included in that list of performances? Would that mean they haven't demonstrated proficiency with the outcome? In addition, all of those words make this outcome anything but a simple sentence. What might be an "umbrella" term under which we could group these expectations instead?
5. Aside from the outcome being not student-centered, it requests many multiple performances (for example, "analyze, evaluate, and apply") that would require

1. very different methods of assessment - that is, you wouldn't assess the student's ability to analyze something the same way you would assess the student's ability to apply a concept. It is also unclear what the primary, overarching cognitive performance should be. What is the most important? The student's ability to analyze, or to evaluate, or to apply? Or even to "implement," or one of the other verbs that appear in the outcome?

How could it be better?

Outcome #2: "Propose practical strategies for implementing health information technology solutions that meet the needs of healthcare organizations."

1. Is it student-centered?
2. Is it authentic and specific to the field of study?
3. Is it easily measurable?
4. Is it appropriate in scope and rigor? Is it a simple, declarative sentence?
5. Does it contain one primary cognitive performance that can be assessed via a single method?

1. Absolutely! It very explicitly states what is expected of the student. Remember when writing outcomes, to ensure that they are student-centered, imagine putting the words "Student should be able to…". In this case, the "student should be able to propose practical strategies…"
2. Yes. This outcome not only describes a performance that is very authentic to what students will be doing in their field of employment, but also explicitly indicates which field of study (health information technology).
3. Yes! "Propose" is an easily observable, and therefore, measurable, cognitive performance. We can assess a student's ability to propose strategies.
4. By gathering "analyze, evaluate, and apply," "implement," and "identify, evaluate, select, implement, and upgrade" all under the larger umbrella of "Propose...strategies," we've narrowed both the scope and the rigor of the outcome by not proscribing all of the processes that might be involved in making a proposal. There is also less risk that we've left something out of that list of processes, and we're not limiting the student to a specific set of actions.
5. We don't have to worry about which performance is most important because it's stated right up front. The most important thing students need to be able to do to demonstrate proficiency in this outcome is to "propose strategies." And we can assess students' ability to propose strategies with a single method of assessment (i.e. a row in the rubric specific to the outcome).

Sample rubric row

	Exemplary	**Proficient**	**Needs Improvement**	**Not Evident**
Proposal	Meets “Proficient” criteria and strategies proposed demonstrate exceptional insight into the needs of the healthcare organization	Proposes practical implementation strategies that meet the needs of the healthcare organization	Proposes implementation strategies, but they are either impractical or they do not meet the needs of the healthcare organization	Does not propose implementation strategies

As I mentioned, here is a row in the rubric specific to the outcome, that tells us not only if the student achieved the outcome, but also the quality (or lack thereof) of the achievement.

While the terms “exemplary,” “proficient,” “needs improvement,” and “not evident” may be unfamiliar to you, and the rubrics that you’re accustomed to seeing may have only three columns instead of four, this should still give you a pretty good idea of how to qualitatively assess a student’s performance. We’ll cover rubrics in another webinar.

Let's practice!

Example: "After completing this module, you will have a basic understanding of x"

Does this meet the criteria for a learning objective?

No, it does not meet all of the criteria.

- It IS student centered; indicating what the student will be able or responsible to do.
- The way it is written, it is impossible to tell if it's authentic to the field of study, and it's not specific to any particular discipline.
- It is not measurable. Remember, we can't tell to what extent a student understands something without specifying what action students must take to demonstrate that understanding.
- The way it is written, it's difficult to say if it's appropriate in scope and rigor - there is no measurable cognitive performance by which to judge this criteria.
- It IS written as a simple, declarative statement - but perhaps a little *too* simple.
- It does not contain any particular cognitive performance (let alone just a single one) that can be assessed.

So overall...NO. This outcome does not meet the criteria we discussed.

Here are some more examples, before and after

Before: Students will demonstrate knowledge of assessment principles.

After: Students will analyze and apply assessment data to literacy instruction.

The “Before” version is better than what we started with. Instead of “having a basic understanding of x,” now students are “demonstrating knowledge.” However, the “After” version is even better than that. Unfortunately, it still contains multiple cognitive performances that would be assessed differently. I would revise this again, perhaps as “Students will analyze assessment data in order to apply it to literacy instruction.” Why?

- First, “analyze” is higher on Bloom’s taxonomy than “apply,” so the primary cognitive performance is at a more appropriate level in terms of rigor.
- Second, while it still has those two performances, by moving the “apply” piece, it has now become a contextualizing element -in other words, *why* students are performing the analysis. Why are they analyzing the data? So that they can apply it to instruction.

And more examples, before and after

Before: Students will engage in reading and analyzing current research by reading professional journals.

After: Students will read and analyze current research from professional journals.

In this example, the “After” version is much tighter, but it does contain multiple cognitive performances again. In this case, I would recommend eliminating the “read and” portion of the outcome. The reason being that it seems pretty safe to assume that if students are going to analyze research, they’ll have to first read it. The “read” performance is therefore subsumed under the “analyze” portion and is unnecessary.

And one final example!

Students will assess the impact of the biological, psychological, and social environment on human behavior.

This outcome meets all of the criteria that we've discussed. It's student-centered, it's authentic and specific to the field of study, it does contain a single, measurable cognitive performance (i.e. "assess" suggests that students are doing an evaluation of some sort), it seems to be appropriate in scope and rigor, it is a simple, declarative sentence, and, as noted, it contains a single performance that can be assessed via a single method. This is a very good outcome!

Integrating with other elements of course design

Let's think back for a moment to our discussion about backward design. Remember, the steps are:

1. Identify desired results
2. Determine acceptable evidence
3. Design activities that will make the results happen

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We've just finished discussing step one - outcomes are what we want students to be able to do upon completion of a course or a program of study. We'll touch now very briefly on how to integrate them with the other principles of backward design.

You'll recall that step two is "determine acceptable evidence." This means stating what students will have to do to demonstrate competency with the outcomes, or assessment of learning. In a course, elements of the summative assessment (that is, the final project) should measure the actual course outcomes. For example, if we think back to our "pop quiz," the second outcome "Propose practical strategies…" could be assessed as a piece of the final project by giving students a prompt to do exactly that - recommend healthcare information technology solutions that would best meet the needs of a given healthcare organization. And, as I mentioned on a previous slide, that written prompt would then have an associated row in the grading rubric that would also measure the quality with which students were able to accomplish the prompt.

Finally, the third step of backward design is to create learning activities that foster the necessary skills and knowledge students need that will lead to their proficiency with the outcomes - in other words, weekly learning activities that will "scaffold" to the outcomes. Using the same example from our pop quiz, perhaps each week students would learn about the different processes involved in being able to recommend solutions - such as some of those from that list: identifying, evaluating, selecting, implementing, and upgrading technological systems.

As I said, we aren’t going to get too deep into this discussion, as we plan to cover these other elements of course design in future webinars, and hope you’ll join us!