CHAPTER 2

Outcomes-Centered Course Design

Teaching has only one purpose, and that is to facilitate learning (Cross, 1988). Learning can occur without teaching at no loss to anyone, but teaching can and unfortunately does occur without learning. In the latter case, the students obviously lose time, money, potential gains in knowledge and cognitive development, and perhaps confidence in themselves or the educational system (or both). But less obviously, instructors lose faith in their students and in themselves. For our own mental health as well as that of our students, we need to make teaching and learning synonymous sides of the same coin.

The first step toward this goal is to design your courses wisely. Whether you are teaching an established course for the first time, developing a brand-new course, or revising a course you currently teach, first ask yourself what you are trying to accomplish. No doubt, you want your students to learn certain things, to master a body of material. But you can't assess how well you've met this goal, or your students' learning, unless you have them do something with that material that demonstrates their learning. What they do may involve writing, discussing, acting, creating a graphic or visual work, conducting an experiment or demonstration, making an oral presentation, designing a Web page, or teaching a lesson. Any display of learning will do, as long as you can perceive it though your senses and appraise the quality of the performance. How else can you determine their internal state—what they know, realize, and understand?

WHY OUTCOMES-CENTERED COURSE DESIGN?

This chapter proposes starting the course design process with what you want your students to be able to do by the end of the course. But other approaches exist. You can develop a course around a list of content topics you consider important to cover. In fact, before 1990, a course was always characterized by its range of content, such as "a comprehensive survey of vertebrate animals including their taxonomy, morphology, evolution, and defining facets of their natural history and behavior" or "an introduction to the process of

literary criticism." Course catalogues and many syllabi still contain these descriptions. You can also organize a course around your favorite textbook or the one you've been told to use. However, such approaches will not ensure that your course is student active, which we know is essential for learning, or acceptable to your institution's and your school's accrediting agencies.

Outcomes-centered course design guarantees a high level of student engagement because the process steers you toward student-active teaching strategies. It also conforms to the accountability requirements of an increasing number of accrediting agencies. These agencies hold a unit accountable for its students' achieving certain learning outcomes, as well as for formally assessing its students' progress toward that goal. In other words, they require departments and schools to determine what they want their students to be able to do, at least on graduation, and to produce materials that show what the students can do. Some agencies even take it on themselves to specify exactly what abilities and skills the graduates of a certain area should demonstrate.

WRITING OUTCOMES

A learning outcome is a statement of exactly what your students should be able to do after completing your course or at specified points during the course. Some faculty set outcomes for individual classes and units of the course. Outcomes are written from a student's point of view—for example, "After studying the processes of photosynthesis and respiration, the student should be able to trace the carbon cycle in a given ecosystem." Of course, they are promises, and you should make it clear that students have to do their part to make this promise come true. So you might state verbally and in your syllabus something like this: "Students may vary in their competency levels on these abilities. You can expect to acquire these abilities only if you honor all course policies, attend classes regularly, complete all assigned work in good faith and on time, and meet all other course expectations of you as a student."

Before you start composing outcomes, find out from your dean or department chair whether an accrediting agency has already mandated them for your course. For instance, the National Council for the Accreditation of Teacher Education lists the required outcomes for many education courses. The Accreditation Board for Engineering and Technology provides program outcomes, some of which may be useful and even essential for your course.

If you, like most other instructors, are free to develop your own outcomes, you might first want to research the history of the course. Why was it proposed and approved in the first place, and by whom? What special purposes does it serve? What other courses should it prepare students to take? Often new courses emerge to meet the needs of a changing labor market, update curriculum content, ensure accreditation, or give an institution a competitive edge. Knowing the underlying influences can help you orient a course to its intended purposes for student learning (Prégent, 1994).

Second, get to know who your students are so you can aim your course to their needs and level. Refer to the first part of Chapter One for the types of student data you will need—all of which should be available from your institution's admissions office, student affairs office, and career center—to find out the academic background, interests, and course expectations of your likely student population. Ask colleagues who have taught the course before about what topics, books, teaching methods, activities, assignments, and so on worked and didn't work well for them. The more relevant you can make the material to the target group, the more effective your course will be.

If you cannot gather much information in advance, keep your initial learning outcomes and course design somewhat flexible. On the first day of class, use index cards and icebreakers to learn more about your students and their expectations (see Chapter Four); then adjust and tighten the design accordingly.

Technically an outcome has three parts to it, though usually only the first part appears in the outcomes section of a syllabus. Sooner or later, however, you will have to define the second and third parts as well:

Part 1: A statement of a measurable performance. Learning outcomes center on action verbs (for example, *define, classify, construct, compute;* see Table 2.1) rather than nebulous verbs reflecting internal states that cannot be observed (for example, *know, learn, understand, realize, appreciate*). For example: "The student will be able to classify given rocks as igneous or metamorphic." "The student will be able to describe the most important differences between sedimentary and metamorphic rocks." Table 2.2 later in the chapter offers many more examples.

Part 2: A statement of conditions for the performance. These conditions define the circumstances under which the student's performance will be assessed. Will she have to demonstrate that she knows the differences among igneous, metamorphic, and sedimentary rocks in writing, in an oral presentation, or in a visual medium (drawings, photographs)? Will he be able to identify the parts of a computer system on a diagram or in an actual computer?

Part 3: Criteria and standards for assessing the performance. By what criteria and standards will you evaluate and ultimately grade a student's performance? What will constitute achieving an outcome at a high level (A work) versus a minimally competent level (C work)? For example: "For an A on essay 3, the student will be able to identify in writing at least three differences between igneous and metamorphic rocks, at least three between igneous and sedimentary rocks, and at least three between metamorphic and sedimentary—for a total of at least nine differences. For a B, the student will be able to identify at least six differences. For a C, the student will be able to identify at least four differences," and so on. Rubrics have such criteria and standards built into them.

TYPES OF LEARNING OUTCOMES

Virtually every college-level course has *cognitive* outcomes—those pertaining to thinking. But other types exist that may be pertinent to your courses. *Psychomotor* skills—the ability to manipulate specific objects correctly and efficiently to accomplish a specific purpose—constitute another type that is important in art, architecture, drama, linguistics, some engineering fields, all laboratory sciences, nursing and other health-related fields, and foreign languages. *Affective* outcomes specify emotional abilities you want your students to develop, such as receiving, responding, and valuing (Krathwohl, Bloom, & Masia, 1999). Of course, you cannot observe your students' inner feelings, but you can observe their demonstration of emotions. For example, in nursing, counseling, and the ministry, students must learn to show empathy and open-mindedness toward patients and clients, and performances can be assessed in a role play or a case analysis. Such abilities are also very useful in management, medicine, human resources, marketing, psychology, and architecture. A wide range of disciplines integrate *social* learning outcomes to their courses, since the workplace relies on teamwork and group learning is now widely accepted. Many instructors want their students to be able to collaborate effectively in a team, and they consider both the group product and peer evaluations of the group members' social behavior in assessing students' performance. With new ethics-across-the-curriculum programs, *ethical* outcomes have come to the fore. Some institutions and schools want their students to take into account the moral considerations and implications of various options in making professional, scientific, technical, and business decisions. The case method, simulations, role plays, service-learning, fieldwork, and internships provide both learning and assessment contexts for ethical objectives. Exhibit 2.1 gives more specific examples of all five types of outcomes.

Exhibit 2.1 General Types of Learning Outcomes

Psychomotor—physical performance; may involve eye-hand coordination. *Examples:* medical and nursing procedures; laboratory techniques; animal handling or grooming; assembling, operating, testing, or repairing machines or vehicles; singing; dancing; playing musical instruments; use of voice, face, and body in public speaking.

Affective—demonstration of appropriate emotions and affect. *Examples:* demonstrating good bedside manner and empathy with patients; showing trustworthiness and concern for clients, customers, subordinates, or students; showing tolerance for differences; showing dynamism, relaxed confidence, conviction, and audience responsiveness in public speaking.

Social—appropriate, productive interaction and behavior with other people. *Examples:* cooperation and respect within a team; leadership when needed; assertive (not aggressive, passive, or passive-aggressive) behavior in dealing with conflict; negotiation and mediation skills.

Ethical—decision making that takes into account the moral implications and repercussions (effects on other people, animals, environment) of each reasonable option. *Examples:* medical and nursing decisions involving triage, transplants, withholding care, and prolonging life; lawyers' decisions about whether and how to represent a client; managerial decisions involving social, economic, political, or legal trade-offs.

Cognitive—thinking about facts, terms, concepts, ideas, relationships, patterns, conclusions. *Examples:* knowledge and remembering; comprehension and translation; application, analysis, synthesis, and creating; evaluation.

Fink (2003) takes a somewhat different approach in his model of six categories of learning, which encompass cognitive, affective, and social outcomes. His categories are cumulative and interactive, and the ideally designed course incorporates all six of them as outcomes. In fact, Fink claims that all six kinds of learning are essential to create a genuinely significant learning experience. These are his categories of learning:

- *Foundational knowledge:* Students recall and demonstrate understanding of ideas and information, providing the basis for other kinds of learning.
- *Application:* Students engage in any combination of critical, practical, and creative thinking; acquire key skills; and learn how to manage complex projects, making other kinds of learning useful.
- *Integration:* Students perceive connections among ideas, disciplines, people, and realms of their lives.
- *Human dimension:* Students gain a new understanding of themselves or others, often by seeing the human implications of other kinds of learning.
- *Caring:* Students acquire new interests, feelings, and values about what they are learning as well as motivation to learn more about it.
- *Learning how to learn*: Students learn about the process of their particular learning and learning in general, enabling them to pursue learning more self-consciously, efficiently, and effectively. (Reprinted with permission of John Wiley and Sons, Inc.)

In the "Helpful Frameworks for Designing a Course" section later in this chapter, we consider how an instructor can create learning experiences that interrelate all these categories synergistically.

For the time being, we will focus on writing cognitive outcomes, since they are universal in higher education courses.

TYPES OF COGNITIVE OUTCOMES

Bloom (1956) developed a useful taxonomy for constructing cognitive outcomes. His framework posits a hierarchy of six cognitive processes, moving from the most concrete, lowest-level process of recalling stored knowledge through several intermediate cognitive modes to the most abstract, highest level of evaluation. (Depending on your field, you may prefer to make application the highest level.) Each level is defined:

- *Knowledge:* The ability to remember and reproduce previously learned material
- *Comprehension:* The ability to grasp the meaning of material and restate it in one's own words
- *Application:* The ability to use learned material in new and concrete situations
- *Analysis:* The ability to break down material into its component parts so as to understand its organizational structure
- *Synthesis:* The ability to put pieces of material together to form a new whole
- *Evaluation:* The ability to judge the value of material for a given purpose

This handy taxonomy is popular to this day, but Anderson and Krathwohl (2000) offer a few "friendly amendments" to it in their newer model. They use more action-oriented gerunds, update the meaning of "knowledge" and "synthesis," and rank "creating" above "evaluating":

- *Remembering* = Knowledge (lowest)
- *Understanding* = Comprehension
- *Applying* = Application
- *Analyzing* = Analysis
- *Evaluating* = Evaluation
- *Creating* = Synthesis (highest)

All of these conceptual terms become more concrete in Table 2.1, which lists common student performance verbs for each of Bloom's and Anderson and Krathwohl's cognitive operations. Once you select the cognitive operations that you'd like to emphasize in a course, you may find it helpful to refer to this listing while writing your outcomes. Another good reference is Table 2.2, which gives examples of outcomes at each cognitive level in various disciplines.

Bear in mind that the true cognitive level of an outcome depends on the material students are given in a course. If they are handed a formal definition of iambic pentameter, then their defining it is a simple recall or, at most, comprehension operation. If, however, they are provided only with examples of poems and plays written in it and are asked to abstract a definition from the examples, they are engaging in the much higher-order process of synthesis.

As you check key verbs and draft outcome statements, think about what cognitive operations you are emphasizing. We can foster critical thinking and problem-solving skills only by setting outcomes above the knowledge/remembering and comprehension/understanding levels. Although these lower levels furnish foundations for learning, they are not the end of education. Therefore, it is wise to include some higher-order outcomes to challenge students to higher levels of thinking. We will revisit Bloom's and Anderson and Krathwohl's combined taxonomy in Chapter Fourteen, as it is also very useful for framing questions.

Once you draft your outcomes, go to Table 2.3, on the last page in this chapter. It presents a rubric for evaluating and revising learning outcomes.

DESIGNING THE LEARNING PROCESS

When you list all your learning outcomes, you will probably notice that some have to precede others. Students have to achieve some of them early in the term to prepare them to achieve more advanced ones

Table 2.1 Student Performance Verbs by Level of Cognitive Operation in Bloom's Taxonomy and Anderson and Krathwohl's Taxonomy

1. Knowledge/Remembering		2. Comprehension/Understanding	
Arrange	Omit	Arrange	Paraphrase
Choose	Order	Associate	Outline
Define	Recall	Clarify	Recognize
Duplicate	Recite	Describe	Rephrase
Find	Recognize	Explain	Report
Identify	Relate	Express	Restate
Label	Repeat	Grasp	Review
List	Reproduce	Identify	Select
Match	Select	Indicate	Summarize
Memorize	Spell	Interpret	Translate
Name	Tell	Locate	Visualize
3. Application/Applying		**4. Analysis/Analyzing**	
Apply	Illustrate	Analyze	Distill
Break down	Interpret	Calculate	Distinguish
Calculate	Make use of	Categorize	Divide
Choose	Manipulate	Classify	Examine
Compute	Operate	Compare	Experiment
Demonstrate	Practice	Contrast	Identify assumptions
Determine	Schedule	Criticize	Induce
Dramatize	Sketch	Deduce	Inspect
Employ	Solve	Derive	Investigate
Give examples	Use	Differentiate	Model
	Utilize	Discriminate	Probe
		Discuss	Question
		Dissect	Simplify
			Test
5/6. Synthesis/Creating		**6/5. Evaluation/Evaluating**	
Adapt	Imagine	Agree	Dispute
Arrange	Infer	Appraise	Evaluate
Assemble	Integrate	Argue	Judge
Build	Invent	Assess	Justify
Change	Make up	Award	Prioritize

Table 2.1 *(Continued)*

5/6. Synthesis/Creating		6/5. Evaluation/Evaluating	
Collect	Manage	Challenge	Persuade
Compose	Modify	Choose	Rank
Conclude	Originate	Conclude	Rate
Construct	Organize	Convince	Recommend
Create	Plan	Criticize	Rule on
Design	Posit	Critique	Score
Develop	Predict	Debate	Select
Discover	Prepare	Decide	Support
Estimate	Produce	Defend	Validate
Extend	Propose	Discount	Value
Formulate	Set up	Discredit	Verify
Forward	Suppose	Disprove	Weight
Generalize	Theorize		

Note: Depending on the use, some verbs may apply to more than one level.

Table 2.2 Examples of Outcomes Based on Bloom's Taxonomy and Anderson and Krathwohl's Taxonomy

Level	The Student Should Be Able to...
Knowledge /Remembering	• Define iambic pentameter. • State Newton's laws of motion. • Identify the major surrealist painters.
Comprehension /Understanding	• Describe the trends in the graph in his or her own words. • Summarize a passage from Socrates' *Apology*. • Properly translate into English passages from Voltaire's *Candide*.
Application/Applying	• Describe an experiment to test the influence of light and light quality on the Hill reaction of photosynthesis. • Scan a poem for metric foot and rhyme scheme. • Use the Archimedes principle to determine the volume of an irregularly shaped object.
Analysis/Analyzing	• List arguments for and against human cloning. • Determine the variables to be controlled for an experiment. • Discuss the rationale and efficacy of isolationism in the global economy.
Synthesis/Creating	• Write a short story in Hemingway's style. • Compose a logical argument on assisted suicide in opposition to his or her personal opinion. • Construct a helium-neon laser.
Evaluation/Evaluating	• Assess the validity of certain conclusions based on the data and statistical analysis. • Critically analyze a novel with evidence to support a critique. • Recommend stock investments based on recent company performance and projected value.

later in the course. If they cannot perform the prerequisite outcomes, they won't be able to achieve the latter ones. For instance, if you want your students to be able to develop a research proposal near the end of the course, they will have to be able to do several other things beforehand:

- Frame a research problem or hypothesis.
- Justify its significance.
- Conduct and write up an adequate literature review.
- Devise an appropriate research design.
- Describe the data collection procedures.
- Outline the steps of the analysis (which is premised on some methodological expertise).
- Explain the importance of the expected results.
- Develop a mock budget.

If your course or its prerequisite courses do not include these skills as outcomes, the students will be ill equipped to achieve the outcome of writing a decent research proposal.

From this perspective, a course is a learning process of advancing through a logical succession of outcomes. This sequencing of outcomes serves as scaffolding for the entire course design.

Ultimate Outcomes

The easiest way to develop this logical succession of student learning outcomes is to formulate your end-of-term, or ultimate, outcomes first. These are likely to be the most challenging skills and cognitively advanced learning. No doubt they require high levels of thinking (application, analysis, synthesis, or evaluation) and a combination of skills and abilities that students should have acquired earlier in the course. Often assessment takes the form of a major capstone assignment or a comprehensive final, or both, to assess student achievement of these outcomes.

Mediating Outcomes

From here you work backward, determining what your students will have to be able to do before they can achieve your ultimate outcomes. These are your mediating outcomes, and you will probably have quite a few of them, each representing a component or lower-level version of one of your ultimate outcomes. You might want to visualize the working-backward process by picturing a branching tree that grows from three or more main trunks (ultimate learning outcomes) on the far right and branches back to the left. These branches represent your mediating and foundational (the very first) outcomes, which students must achieve before attempting the more advanced outcomes to the right.

Your challenge now is to figure out the most logical and efficient order in which students should acquire these mediating abilities. These outcomes may have a logical internal order of their own. The skill-building logic is probably clearest in cumulative subjects such as mathematics, physics, and engineering. However, many courses, especially those within a loosely organized curriculum, allow instructors a lot of discretionary room in sequencing the mediating outcomes. Textbooks may follow a certain order, but the topical sequencing may be largely arbitrary. In introductory survey courses, literature courses, and even certain science and health science courses, the topics students study and the skills they acquire can be logically organized in different ways.

Foundational Outcomes

Once you work your way back to the beginning of your course, you will reach your foundational learning outcomes: those on which the learning process of the course is predicated. These will involve one or more of the following:

- Your students will master the lowest-level cognitive operations on the subject, recalling and paraphrasing basic facts, processes, and definitions of essential terms and concepts.
- They will identify, question, and abandon the misconceptions about the subject matter that they brought into the classroom at the beginning of the term.

- They will identify, question, and abandon their dualistic thinking about the subject matter (a particularly prevalent epistemological misconception) as they come to recognize uncertainties in the field.

These are perhaps the most basic learning objectives we can set for students. After all, they can't apply, analyze, synthesize, or evaluate a discipline's knowledge if they cannot speak or write the discipline's language and summarize or paraphrase the basics. If you organize a course into modules of knowledge that have different sets of basic facts, terms, concepts, or theories, you will probably have foundational outcomes at the start of each module.

Moreover, students cannot accurately map new, valid knowledge onto existing knowledge that is riddled with misconceptions and misinformation. A faulty model will not accommodate the new material you intend for them, so they will not be able to assimilate it, at least not at more than a surface level. To bring about a major shift in your students' worldview, you must create learning situations that reveal the errors in their mental models and the explanatory superiority of your discipline's model.

Let us consider some discipline-specific examples of essential shifts. To master physics on a serious level, students must replace their Aristotelian or Newtonian model of the physical world, both of which are serviceable in everyday life, with Einstein's model. To think like a sociologist, a learner must relinquish an individualistic free-will view to explain people's life courses and replace it with the deterministic, probabilistic theory that their location in the social structure at birth stacks the deck in favor of or against possible life courses and the acquisition of various rewards. To understand evolutionary biology, students have to stop viewing *Homo sapiens* as the purpose and destination of epochs of evolution and see our species as just another temporarily successful adaptation among millions of others.

In addition, to begin to internalize any body of knowledge, students must acquire an understanding of what knowledge actually is and what it isn't. As discussed in Chapter One, knowledge is simply a mental grid that human beings have created and imposed over a more complex reality to try to understand and manipulate it. This grid encompasses all the major patterns we have identified through our observations, along with our best-evidenced interpretations of them at this point in time. The fact that that reality is inherently messy and conforms only so far to any grid we can construct is the underlying source of the uncertainty in all disciplines. Because all grids are more or less flawed, disciplines have evolved standards of comparison for distinguishing the better ones. To bring students to these insights, dualism is the first misconception we should discredit before escorting them into our subject matter.

HELPFUL FRAMEWORKS FOR DESIGNING A COURSE

Three frameworks—Bloom's (1956) and Anderson and Krathwohl's (2000) hybrid taxonomy cognitive operations, Perry's (1968) and Baxter-Magolda's (1992) theory of undergraduate cognitive development, and Fink's (2003) categories of learning—offer schemata, alone and in combination, for designing courses. You may find one or more of them useful as heuristic devices.

Bloom's and Anderson and Krathwohl's Framework

Both Bloom's (1956) and Anderson and Krathwohl's (2000) taxonomies of cognitive operations are hierarchical, from lower order to higher order. They posit that to be able to perform one level of thinking, learners must be able to perform all the lower-order thinking operations. By extension, a well-designed course should sequence the learning outcomes to lead students up the hierarchy.

It is self-evident that a student has to be able to define certain concepts, state certain principles, and recall certain facts before thinking about them in a more complex way. But beyond that, both Bloom's

and Anderson and Krathwohl's hierarchy breaks down. For instance, the practice of medicine, law, and other professions is all about *applying* knowledge to new, often complicated situations. But before applying knowledge, professionals have to *analyze* the elements of the problematic situation, *evaluate* what knowledge and disciplinary algorithms are most useful and relevant to the situation, and *synthesize* (or *create*) a problem-solving strategy—for example, a legal approach or a medical diagnosis and treatment plan.

Perry's and Baxter-Magolda's Framework

"The Cognitive Development of Undergraduates" section in Chapter One summarizes both Perry's (1968) and Baxter-Magolda's (1992) parallel frameworks. As a course design heuristic, the idea is to sequence your learning outcomes as students progress through each of the stages or levels, whether nine or four, as far as you think you can lead your class. For the primary foundational outcome, which is moving beyond dualism, students would have to explain the multiple competing interpretations or theories for some disciplinary phenomenon or issue, demonstrating that they realize that authorities don't have all the answers or the one right answer on the matter. To achieve a major mediating outcome (moving through multiplicity and relativism), students would have to analyze and critique these interpretations or theories. For the ultimate outcome (tentative commitment), they would have to embrace one of the interpretations or theories and justify their choice, as well as qualify it by explicating the limitations of the chosen viewpoint.

While this schema may not apply well to an undergraduate science or engineering course, it can work very effectively in high-uncertainty and interpretive disciplines, such as literature, the arts, and philosophy. I used it to design a freshman seminar I taught in the past, Free Will and Determinism. While anchored in philosophy, it featured readings from clinical and behaviorist psychology, sociology, political science, genetics, biochemistry, and sociobiology. Rather than list them in the learning outcomes in the syllabus—at the time, they were called "objectives," not "outcomes," and were rarely listed—I wrote them in the paragraphs below, starting with the ultimate outcome:

> By the end of this course, you will have developed a well-reasoned, personal position on the role of free will, determinism, compatibilism, fatalism, and spiritual destiny in your own and others' lives. You will be able to express, support, and defend your position orally and in writing while acknowledging its weaknesses and realizing that it can never be validated as "the right answer" and that it may change over time [Ultimate Outcome: Tentative Commitment]. Hopefully, you will also begin to feel comfortable with the uncertainty and tentativeness of knowledge and with making decisions in spite of it.
>
> To help you attain these major objectives [outcomes], you will also acquire these supporting abilities: to sift out the various positions on free will and determinism (as well as compatibilism, fatalism, and spiritual destiny) in the assigned literature, along with their implicit premises and "givens," and to express them accurately in writing and orally [Foundational Outcome: Uncertainty]; to draw sound comparisons and contrasts among them; to evaluate their strengths, weaknesses, and limitations [Mediating Outcome 1: Uncertainty as Inherent and Legitimate]; and to distinguish among the stronger and the weaker positions [Mediating Outcome 2: Standards for Comparison].

The ultimate outcome closely reflected the final paper and the two mediating outcomes, the tasks required in the first two papers.

Fink's Framework

Fink's (2003) categories of learning do not offer a built-in sequencing of outcomes as do the other two frameworks. His approach is not hierarchical but cumulative and interactive. An ideally designed and developed course promotes all six kinds of

learning, resulting in a genuinely "significant" learning experience. The goal is not to order the kinds of learning but to help students interrelate and engage in them synergistically. So a course design based on Fink's framework might start with foundational knowledge and then progressively add outcomes addressing each of the other five kinds of learning one or more times during the course, ensuring that all six kinds are represented by the end.

According to Fink, his framework can accommodate courses of all levels and disciplines, whether face-to-face or online, and he provides a comprehensive, step-by-step procedure for applying it to any course. Here is one generic example. After students acquire some foundational knowledge, have them apply this new knowledge to solve a problem of relevance to them (application) or to a situation where they can see how some phenomenon affects them and others (human dimension). This learning experience should promote their interest in the subject matter (caring). With their interest piqued, they should begin to notice the relationships between the new material and other things they have learned (integration). As they recognize more linkages, they should start drawing additional implications for their own and others' lives (human dimension) as well as other ways to apply the material to improve the quality of life (application). At this point, they should want to learn still more (caring) and realize their need to acquire stronger learning skills (learning how to learn). This illustration shows that a well-designed course can generate a mutually reinforcing relationship between learning and motivation.

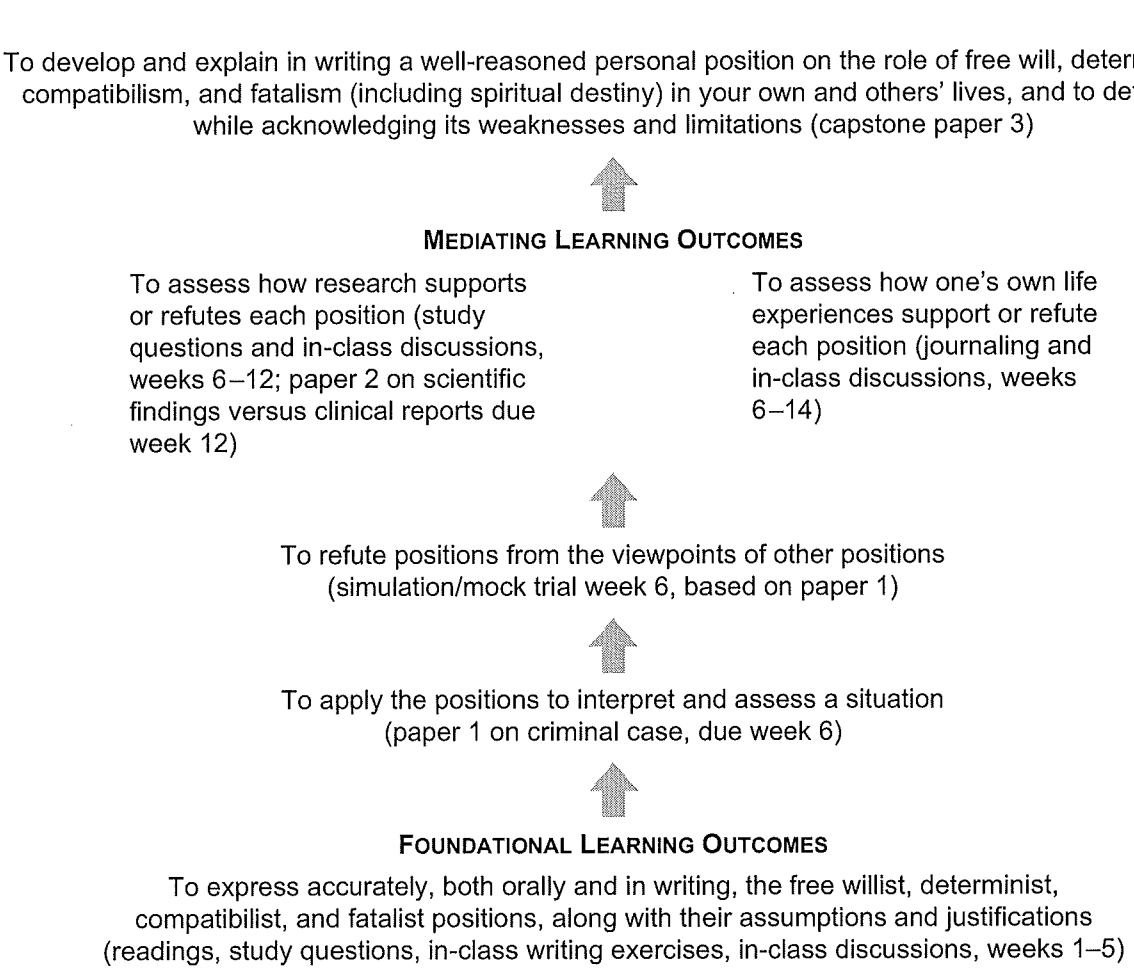
SHOWING STUDENTS THEIR LEARNING PROCESS

The younger generation of students is not as facile with text as it is with visuals, so a wise idea is to illustrate your course design to your students so they can see where your course is going in terms of their learning. You can illustrate your course design in an *outcomes map,* which is a flowchart of the learning outcomes, starting from your foundational outcomes, progressing through your mediating outcomes, and finally arriving at your ultimate outcomes. In other words, it is a visual representation of the sequence, progression, and accumulation of the skills and abilities that students should be able to demonstrate at various times in the term. It shows how achieving one or more outcomes should enable students to achieve subsequent ones.

As I have written extensively on charting an outcomes maps elsewhere (Nilson, 2007a), I will furnish here just a couple of examples that I have developed. Figure 2.1 is an outcomes map for my Free Will and Determinism course. Following Perry's (1968) framework, it contains just a few outcomes that build up to the ultimate "commitment" outcome. These outcomes parallel those copied from the course syllabus above. Figure 2.2 is the outcomes map for my graduate course, College Teaching. It does not follow any course design framework. It has a genuine flowchart look and feel, clearly showing how achieving one outcome equips students to achieve later ones. The students' major assignment is an individual course design and development project, after which they write a statement of teaching philosophy. I make it clear to my students that, of course, I won't be able to assess them on two of the ultimate outcomes—obtaining a teaching position and meeting institutional assessment requirements and goals—but they will leave knowing how to meet these crucial career goals in their fast-approaching future.

While these two examples look very different, they cannot possibly illustrate the dozens of ways that outcomes maps can vary: the directions in which they flow, their spatial arrangements, their enclosures and connectors, and their use of type sizes, type styles, shadings, and colors. Outcomes maps may or may not reflect one of the three course design frameworks discussed earlier. They may or may not supply a time schedule—such as the week or class number that you

Figure 2.1 Outcomes Map for a Freshman Seminar: Free Will and Determinism



expect students to achieve each outcome. But however they look, they all furnish students with far more information about how their learning will progress through the course than a simple list of outcomes.

If you decide to chart an outcomes map for any of your courses, the process will probably make you reexamine your outcomes and their sequencing. You might realize that you've previously missed a step or two in your students' logical learning process or that a different ordering of some of your outcomes would make more sense. So you may find that you get as much out of your drawing the map as your students do.

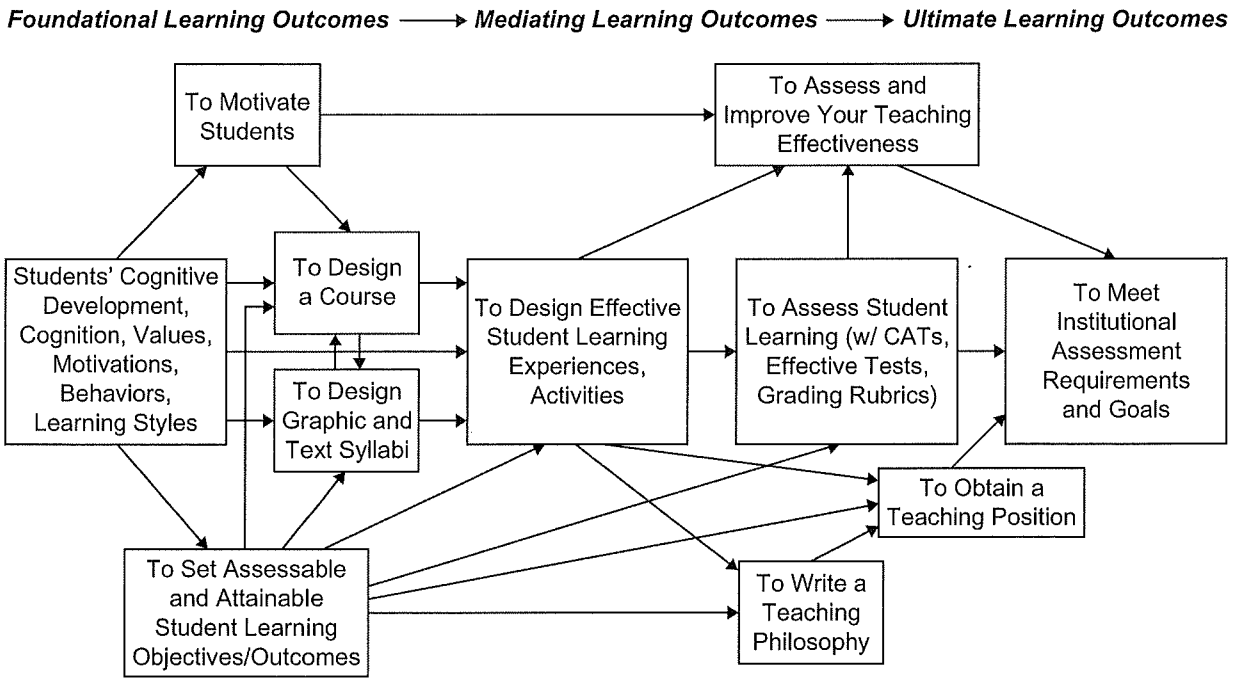
OUTCOMES-CENTERED COURSE DEVELOPMENT

Your course design is a skeleton. With that in place, you have to start developing the course into a more detailed plan—that is, filling it out by putting muscle and connective tissue on the bone structure.

Course Content

Only after formulating your learning outcomes should you begin to select the content that will help your students achieve those outcomes. The challenge is to limit the content to only this purpose. If you

Figure 2.2 Outcomes Map for a Graduate Course, College Teaching
Note: CATs = classroom assessment techniques.



specialize in the content area, it will be difficult to narrow it. Prégent (1994) advises brainstorming as many topics and themes as possible. For help, you can consult Contents pages of reputable texts, course catalogues and syllabi from other institutions, and your colleagues. Then rank-order the topics according to their relevance to your outcomes.

Do not hesitate to eliminate topics entirely. Instructors, especially new ones, tend to pack too much material into a course. It is better to teach a few topics well than merely to cover the material with a steamroller and wind up teaching very little of anything.

You can draw a graphic of the interrelationships among your course topics just as you can draw one about the organization of your student learning outcomes. We look at the graphic syllabus in the next chapter.

Readings

Choose books in line with your learning outcomes and content. If you are looking specifically for a textbook, you will be fortunate to find one that reflects your general philosophy and preferences. If you're not so lucky, consider selecting the best available option for some of your reading assignments and supplementing it with handouts, reserve readings, websites, and a class packet. Try to avoid making students purchase more than one expensive text.

It is one thing to assign readings and another to get students to read them. If you have found students' reading compliance or even comprehension to be a problem, then consider yourself in excellent company and refer to Chapter Twenty-Three for solutions.

In-Class Activities, Assignments, and Assessments

Your learning outcomes should direct all the other elements of your course. Let's start with graded assignments and assessments. Your ultimate outcomes should suggest questions and tasks or at least foci, themes, or formats for your final exam, final paper assignment, or capstone student project. After all, these outcomes delineate what you want your

students to be able to do by the end of the course. Then move backward through the course and devise assignments and tests that have students performing your mediating and, finally, your foundational outcomes. Once you've written sound outcomes, you've at least outlined your assignments and assessments. It's just that simple—almost anyway. The chapters in Part Six offer good advice about constructing these instruments and assessing student performance on them.

Table 2.3 Rubric for Evaluating and Revising Student Learning Outcomes

Dimension	Excellent	Common Errors	Needs Revision	Missed the Point
Outcomes are observable, assessable, and measurable.	Outcomes are assessable and measurable. The instructor can observe (usually see or hear) and evaluate each learner's performance by clear standards—for example, how well, how many, to what degree.	Some outcomes use verbs that refer to a learner's internal state of mind, such as *know, understand,* or *appreciate,* which an instructor cannot observe and assess. Or some outcomes are too general to specify standards for evaluation.	Outcomes do not describe (1) observable performances that are assessable and measurable and/or (2) what the learners will be able to do.	Outcomes list the topics the course will cover or what the instructor will do. Or outcomes use verbs that refer to a learner's internal state of mind, which an instructor cannot observe and assess.
Most outcomes require high levels of cognition.	Most outcomes reflect high levels of cognition (application, analysis, synthesis, and evaluation).	All or almost all the outcomes require low levels of cognition (knowledge and comprehension), such as *recognize, identify, define,* or *describe.*	Not enough outcomes address higher levels of cognition, given the level of the course and the learners.	Some outcomes consistently use verbs that refer to a learner's low-level internal state of mind, such as *know, understand,* or *appreciate.*
Outcomes are achievable.	Outcomes are realistic for the course length and credit hours and the level of the learners.	Outcomes are too numerous for the instructor to assess or the learners to achieve.	Outcomes are too advanced for the course length or credit hours for the learners.	Outcomes don't use action verbs to describe what the learners will be able to do.
Outcomes are relevant and meaningful to the learners.	Outcomes are relevant to the learners and their personal or career goals.	Not all the outcomes and their benefits are clear to the learners.	The learners can't make sense out of the outcomes.	Outcomes don't indicate what the learners will be able to do.

Selecting in-class activities and learning-focused assignments is a more complex process because you have so many possibilities to choose from and so little time to manage and give feedback on them. So all of Chapter Eleven is devoted to helping you make the best decisions—that is, selecting the most

effective methods for your outcomes—and the chapters in Parts Three and Four describe your major options and how to implement them. You will find the class-by-class bricks and mortar for building a successful learning experience for your students, ensuring that your teaching translates into learning.

Indeed, your outcomes can and should guide your choice of activities down to the individual class level. If you want your students to be able to write a certain type of analysis by a certain week of the term, then structure in-class activities and assignments to give them practice in writing that type of analysis. If you want them to be able to solve certain kinds of problems, then design activities and assignments to give them practice in solving such problems. If you want them to research and develop a point of view, and argue it orally, then select activities and assignments to give them practice in research, rhetoric, and oral presentation, if they don't already have it.

Figure 2.1 of my Free Will and Determinism course shows not only the relationships among the learning outcomes but also the activities and assignments that helped students achieve those outcomes and assessed their progress. These activities and assignments are listed in parentheses after each outcome, followed by the weeks in the term that they occurred. They included three papers, readings, in-class and online discussions, journaling, a simulation, study questions, and in-class writing exercises. While this does not provide a class-by-class schedule, it served well as a general outline for developing the schedule and detailed descriptions of the activities and assignments.

Once you have a sound course design, your syllabus almost writes itself. The next chapter presents a concise checklist of all the information that can and usually should be included in this important course document.