عمادة تطوير المهارات
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ESSENTIALS OF EFFECTIVE TEACHING SERIES

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وكالة الجامعة للشؤون التعليمية والأكاديمية
عمادة تطوير المهارات

# EFFECTIVE CLASSROOM COURSE DESIGN

R. ERIC LANDRUM
BOISE STATE UNIVERSITY

BOOKLET

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عمادة تطوير المهارات
إنجاز متميز .. والتزام بالتطوير


بسم الله الرحمن الرحيم


# Effective Classroom Course Design

**R. Eric Landrum**

**Boise State University**

# Effective Classroom Course Design

Instructors who teach college courses follow some sort of design process in the development of a course to teach; even if the instructor follows no particular process, that in itself is a process. This situation is analogous to when asking a person a question, and the person does not answer verbally, the lack of an answer is an answer. In this booklet, I propose that instructors should follow a more planful course design process and not leave important elements of effective classroom course design to chance. There are different approaches to planful and systematic course design (e.g., traditional, backward course designs), but there appear to be common elements that every instructor must address in designing a course. Researchers (as in the Scholarship of Teaching and Learning [SoTL] research) may combine or re-order the elements differently, but the fundamental elements of course design appear to be learning objectives, pedagogical choices for classroom instruction, and assessment processes. When these elements are clearly defined, a syllabus is created and the course is ready to launch. Before addressing these key elements of effective course design in this booklet, there are some foundational ideas to be addressed before the stage is set for deeper exploration.

Effective classroom course design should have at least one clear outcome-improved student learning. Although conceptually this desired outcome may sound conceptually straightforward, it is remarkably complex to measure in reality, and may vary greatly on the discipline, developmental level of the student, a focus on knowledge vs. skills and abilities, and so on. Shavelson (2010) provided important distinctions regarding learning (direct and indirect measures), achievement, and propensity

to learn. Using a strict definition, Shavelson defined learning as "a permanent change in observable behavior over time" (p. 9), with direct measures of learning ( for example, evidenced by scores on licensure or graduate school admissions exams or broad measures of critical thinking [the *Collegiate Learning Assessment*, the Measure *of Academic Proficiency and Progress*]). By using a precise definition of learning (change in observable behavior over time), other measures of learning are indirect at best (results on the *National Survey of Student Engagement*, time to degree completion, graduation rates).

From Shavelson's perspective, these indirect measures of learning are not measures of learning at all. Thus, it is important for instructors and SoTL researchers to agree on outcome measures (i.e., dependent variables) of learning in order to ultimately establish the effectiveness of their course design efforts. Not surprisingly, our scenario quickly becomes more complicated. What if a course is effectively designed and ineffectively implemented by an instructor? Decisions about the effectiveness of course design should only be linked in part to direct student outcomes because many other factors can come into play in which an effectively designed course is implemented in a less-than-successful manner. Just as instructors are evaluated and students are evaluated using separate criteria, the effectiveness of one's course design should also be determined using criteria related (though not identical to) instructor and student evaluative criteria.

Assessment of learning is the phrase that Shavelson (2010) used to describe the combination of direct and indirect measures of learning. To reiterate, in this strict interpretation of learning, multiple student measures must be available over time, otherwise it is difficult to ascertain the value added nature of a college education in regard to other life experiences that may provide sources of behavior change. For instance, student evaluations of teaching conducted typically at the end of the semester are not measures of learning, even if students are asked to self-report their own level of learning. Course design may also be a term (like "learning") that has multiple meanings that should be clearly defined. Fink (2003) discussed the related ideas of teacher-student interactions, course management, and design of instruction as faculty development terminology. Most instructors have a solid perspective on course management, such as the ebb and flow of assignments and grading throughout a semester. However, few instructors have formal training in instructional design (Fink, 2003), hence the expectation that this booklet will be helpful to teachers who desire to learn more about and improve upon their own design of instruction.

## Components of Effective Classroom Course Design

Where any particular course falls in the curriculum of the major and the institution will impact course design decisions. A common perspective needs to be reached regarding the depth or breadth of a course (San Francisco State University, 2003). If determining the overall/overarching goals of the course is troublesome, completing the *Teaching Goals Inventory* (Angelo & Cross, 1993) with a particular course and context in mind may provide some helpful insights and structure to your thinking about your course. Examination of the items from the *Teaching Goals Inventory* (without completing the instrument) could be helpful in stimulating reflection about your course and teaching goals; the 52 goal statements from the *Teaching Goals Inventory* presented in Table 1 here.

**Table 1**

**Goal Statements from the Teaching Goals Inventory**

1. Develop ability to apply principles and generalizations already learned to new problems and situations.
2. Develop analytic skills.
3. Develop problem-solving skills.
4. Develop ability to draw reasonable inferences from observations.
5. Develop ability to synthesize and integrate information and ideas.
6. Develop ability to think holistically: to see the whole as well as the parts.
7. Develop ability to think creatively.
8. Develop ability to distinguish between fact and opinion.
9. Improve skill at paying attention.
10. Develop ability to concentrate.
11. Improve memory skills.
12. Improve listening skills.
13. Improve speaking skills
14. Improve reading skills.

15. Improve writing skills.
16. Develop appropriate study skills, strategies, and habits.
17. Improve mathematical skills.
18. Learn terms and facts of this subject.
19. Learn concepts and theories in this subject.
20. Develop skill in using materials, tools, and/or technology central to this subject.
21. Learn to understand perspectives and values of this subject.
22. Prepare for transfer or graduate study.
23. Learn techniques and methods used to gain new knowledge in this subject.
24. Learn to evaluate methods and materials in this subject.
25. Learn to appreciate important contributions to this subject.
26. Develop an appreciation of the liberal arts and sciences.
27. Develop an openness to new ideas.
28. Develop an informed concern about contemporary social issues.
29. Develop a commitment to exercise the rights and responsibilities of citizenship.
30. Develop a lifelong love of learning.
31. Develop aesthetic appreciation.
32. Develop an informed historical perspective.
33. Develop an informed understanding of the role of science and technology.
34. Develop an informed appreciation of other cultures.
35. Develop capacity to make informed ethical choices.
36. Develop ability to work productively with others.
37. Develop management skills.

38. Develop leadership skills.
39. Develop a commitment to accurate work.
40. Improve ability to follow directions, instructions, and plans.
41. Improve ability to organize and use time effectively.
42. Develop a commitment to personal achievement.
43. Develop ability to perform skillfully.
44. Cultivate a sense of responsibility for one's own behavior.
45. Improve self-esteem/self-confidence.
46. Develop a commitment to one's own values.
47. Develop respect for one's own values.
48. Cultivate emotional health and well-being.
49. Cultivate physical health and well being .
50. Cultivate an active commitment to honesty.
51. Develop capacity to think for oneself.
52. Develop capacity to make wise decisions.

### Learning Outcomes/Objectives

The teaching goals provided as examples in Table 1 also provide numerous possible elements of specific learning outcomes or objectives for students as part of the course design process. There are at least three different levels or methods of examining learning outcomes (Shavelson, 2010): (a) student learning within the major, (b) general reasoning and communication abilities (i.e., critical thinking, analytical reasoning, problem-solving), and (c) non-cognitive skills, such as individual and social responsibility (e.g., ethical reasoning, sociocultural awareness, propensity for lifelong learning). In many respects, these broad-based statements make sense as potential learning outcomes for students, but broad-based statements are not sufficient in most cases in providing a measurable student outcome, especially when demonstrating the effectiveness of course design is a goal. As with many aspects of teaching and learning, creating effective learning outcomes is harder than it looks.

Yeh (2003) provided a four part ABCD model of creating effective learning objectives. An example of this approach is provided in Table 2.

**Table 2**

**The ABCD Model for Creating Effective Learning Objectives, With Exemplars in Bold**

| Part | Description | Example |
|---|---|---|
| A = Audience | Who is your audience?<br>Who is performing the action? | Given the symbol representing a particular isotope of an atom or ion, **the student will be able to** determine the number of electrons, protons and neutrons in that species eight out of ten times. |
| B = Behavior | What will the student be able to do?<br>Behaviors always use a verb or action word.<br>Sometimes you will describe the product or the result of the behavior. | Given the symbol representing a particular isotope of an atom or ion, the student will be able to **determine the number of electrons, protons and neutrons in that species** eight out of ten times. |
| C = Condition | How will the student accomplish the task?<br>What information is given?<br>What information is not given?<br>Give the conditions in which performance will occur. | **Given the symbol representing a particular isotope of an atom or ion,** the student will be able to determine the number of electrons, protons and neutrons in that species eight out of ten times. |
| D = Degree | Describe the minimum criteria for acceptable student performance.<br>• How often?<br>• How well?<br>• How many?<br>• How much?<br>Define expectations regarding accuracy, quality, and speed. | Given the symbol representing a particular isotope of an atom or ion, the student will be able to determine the number of electrons, protons and neutrons in that species **eight out of ten times.** |

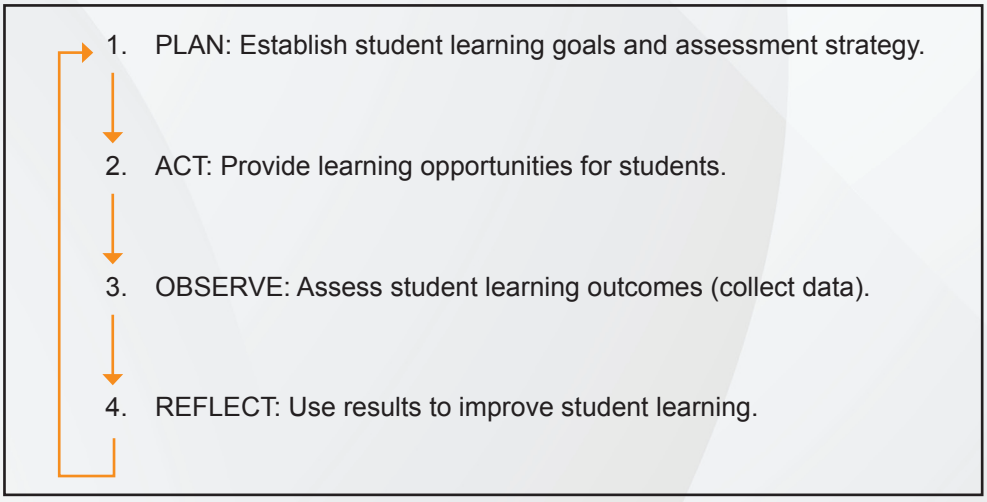
Source: Yeh (2003). Reprinted with permission.

Learning goals and outcomes may be an individual instructor decision, or dictated by departmental goals. The foundational, primary step in effective course design is to establish learning outcomes. The greater the specificity in defining those goals, the better the clarity in measuring the outcomes and one's ability improves in determining the effectiveness of the course and its design. Depending on the specific design

approach used, determining the student assessment methods may or may not be the next step in effective course design, but it certainly is a major component of the process (more on the "ordering" of these elements later in this booket).

### Assessment Approaches

There are many different sources for general assessment advice, including helpful resources provided by Diamond (2008), Maki (2004), and Suskie (2009). Designing a course, and in particular the assessment portion of a course, resembles the typical steps in action research: plan, act, observe, and reflect. This strategy, when specifically applied in a course design context, can be helpful in providing an overview or roadmap to the process. In particular, the emphasis on reflection about course outcomes (with assessment data in hand) is often overlooked, and a welcome reminder that teaching scholars use self-reflective practice as a key process in the cyclical and recursive nature of teaching and learning from class or class and from semester to semester. In Figure 1, notice how the action research strategy maps onto a systematic approach to teaching, with an emphasis on assessing student outcomes (Suskie, 2009).




In fact, in the United States there is an entire national organization devoted to the study of learning outcomes assessment on the collegiate level—the National Institute for Learning Outcomes Assessment (www.learningoutcomesassessment.org). The strong recommendation of this organization is that the assessment of learning outcomes utilize an evidence-based approach. That data can be quantitative or qualitative in nature, and the evidence certainly must be related to the outcomes and

expectations of the discipline, but the most basic question is whether, if instructors are not recording some observable measure of student progress, then how will any they know that their teaching is effective? No matter when it is achieved or where it occurs in the design process, assessment is a key element that is often overlooked but cannot be ignored if effective classroom course design is the ultimate goal.

Meaningful assessment can pay important dividends for students, instructors, departments, and institutions. For instance, after learning objectives are determined, Diamond (2008) suggested that assessment can be used to help achieve one or more of these goals: (a) identifying students for remediation, (b) determining if the learning outcomes are being achieved by measuring student performance, (c) determining if students' attitudes or beliefs about the discipline being studied exhibit changes, and (d) determining if the overall course design (including materials and procedures) are effective and efficient. With learning objectives in place and meaningful assessment occurring, a vital element to be determined are the pedagogical choices to be made that lead to effective courses and ultimately lead to superior student learning.

### Pedagogical Choices

One rationale for making pedagogical choices would be to follow a developmental process or developmental progression with students (Weimer, 2002). To offer a well-designed course and have students succeed in that course, student motivation plays a key role in the level of engagement students will have with the course and the instructor. Ambrose, Bridges, DiPietro, Lovett, and Norman (2010) offer research-based suggestions for how to help students value and build a positive expectancy for your course (see Table 3).

**Table 3**

**Strategies to Establish Value and Positive Expectancies for a Course Experience**

**Strategies to Establish Value**

- Connect the material to students' interests.
- Provide authentic, real-world tasks.
- Show relevance to students' current academic lives.
- Demonstrate the relevance of higher-level skills to students' future professional lives.
- Identify what you reward and value.
- Show your own passion and enthusiasm for the discipline.

**Strategies That Help Student Build Positive Expectancies**

- Ensure alignment of objectives, assessments, and instructional strategies
- Identify an appropriate level of challenge
- Create assignments that provide the appropriate level of challenge.
- Provide early success opportunities.
- Articulate your expectations.
- Provide rubrics.
- Provide targeted feedback.
- Be fair.
- Educate students about ways we explain success and failure.
- Describe effective study strategies.

**Strategies That Address Both Value and Expectancies**

- Provide flexibility and control.
- Give students an opportunity to reflect.

Source: Ambrose, et al. (2011).

Although actual course design outcomes are infrequently documented, Stout (2001) provided an example of a traditional course design approach that yielded many of the outcomes presented in the table here. For more details about different types of flexibility (planning-type vs. interpersonal flexibility), see de Boer and Collis (2005).

The range of potential teaching methods, approaches, and strategies is voluminous. For a list of many of the possibilities, see Table 4. If an instructor is looking to break away from the lecture approach, the options provided in Table 4 may provide ideas about how pedagogical practices could be selected and matched to achieve desired student outcomes.

**Table 4**

**A Sampling of Teaching and Learning (Pedagogical) Strategies**

| | | |
|---|---|---|
| Active Learning | Jeopardy | Round-Table Discussion |
| Apprenticeships | Jigsaws | Scored Discussions |
| Authentic Assessment | Journal Writing | Self-Assessments |
| Authentic Instruction | Just-in-Time Teaching | Self-Paced Learning |
| Blogs | Keller method | Service Learning |
| Book Reports | Knowledge Rating | Shared Inquiry |
| Case Studies | Laboratory-based Instruction | Simulations |
| Chalk Talks | Learner Centered | Situated Learning |
| Classroom Research Techniques | Learning Communities | Situational Role Play |
| Clickers | Lecture | Skits |
| Collaborative Learning | Letter Writing | Small-Group Instruction |
| Computer Assisted Instruction | Literature Search | Socratic Method |
| Computer-Based Training | Mastery Learning | Spiral Sequencing |
| Concept Grids | Mentoring | Story Maps |
| Concept Map | Microteaching | Storyboarding |
| ConcepTests | Mock convention | Structured Controversy |

Conducting Experiments
Contract Grading
Cooperative Learning
Critical Instances
Curriculum Centered
Data Analysis
Debates
Deductive Inquiry
Demonstrations
Discovery-Based Learning
Discussion
Experiential Learning
Experimental Inquiry
Facilitative Questioning
Faculty-student Research
Field Observations
Flashcards
Forecasting
Freewriting
Gallery Walk
Game-Based Learning
Grant Writing
Group Work
Guest Speakers
Guided Imagery
Modeling
Muddiest Point
Nature Walks
Negative Brainstorming
Observation
One Minute Papers
On-line Teaching
Oral Reports
Outcome-based Learning
Overheads
Panel of Experts
Peer Instruction
Peer Review
Peer Tutoring
Picture Mapping
Podcasts
Portfolio
Position Paper
Posters
PowerPoint
Precision Teaching
Problem-Based Learning
Proposal Writing
Quickwrite
Reaction Papers
Studio Teaching
Study Abroad
Study Groups
Study Guides
Supervised Practice
Surveys
Symposium
Team Teaching
Textbook Assignments
Think-Aloud
Think-Pair-Share
Threaded Discussion
Three Minute Pause
Tutorials
Universal Design
Video Clips
Virtual Communities
Weblogs
Wikis
Worksheets
Writing Across Curriculum

| | |
|---|---|
| Guided Practice | Reciprocal Teaching |
| Immersion | Recitation |
| Independent Research | Reflection Papers |
| Inductive Learning | Reflective Discussion |
| Interactive Lectures | Reflective Practice |
| Interactive Writing | Report Writing |
| Interteaching | Research Papers |
| Interviewing | Research Projects |
| | Role-Playing |

Created in colloboratin with Stephen Chew.

## Different Approaches to Implementing Effective Classroom Course Design Processes

Using a model for course design efforts can have advantages (Diamond, 2008), including a chance to think about a course in ideal terms, encouraging thinking about the structure and content of a course, relying on data, encouraging a more global team approach, and being politically sensitive to contextual issues. There are many different methods of designing a course: Fink (2003) characterized these approaches as a traditional approach and an integrated course design model (backward design).

### Traditional Course Design

Diamond (2008) described what a traditional course design approach might look like. For instance, after developing goals and learning outcomes, he recommended the selection of instructional formats next to be followed by the evaluation and selection of existing materials. Thus, typical course design advice focuses on developing course content, accounting for the class environment (presentation of content, daily classroom interactions), and grading (Suddreth & Galloway, 2006).

Consider the scenario in which you are asked to teach a new course—what steps might you follow? With regard to course planning and design, many would select

the textbook first (because of departmental/institutional deadlines perhaps). You may choose a teaching approach that has served you well in the past—for example, students (and student evaluations) suggest you are an outstanding lecturer, so you elect to use lectures. You have favorite exercises and activities from other courses that you "know" will work, so you make sure to include your time-tested favorites. Perhaps after the course is designed and you order the textbook, But while writing the syllabus, you realize you need to add assessments. Will students write a paper, take tests or quizzes, participate in online discussion threads, or create a wiki? You add the assessment strategy at the end of the design process because you do have to (perhaps begrudgingly) assign grades at the end of the course. What I describe here is a typical approach to course design (Wiggins & McTighe, 1998). Wiggins and McTighe suggested that if assessment practices are not embedded from the start, instructors may view meaningful assessment as additional work and view assessment processes as a burden rather than an opportunity to gauge the level of student achievement.

### Backward Course Design.

In the previous example, learning goals may have been central to the design process, but assessment appears to be an afterthought. Experts in course design suggest a different sequence of course planning steps; a sequence that is counterintuitive to many instructors, hence the label "backward design" (Fink, 2003; Wiggins & McTighe, 1998). The term,"backward," calls attention to a different sequence of course planning. In backward design, learning goals are the initial, central focus of the design process. These learning goals must be articulated with clarity and precision to be useful in the next step of backward design, which is to determine the assessment method. After the assessment process is in place, then the teacher designing the course considers the pedagogical approach—in this case, assessment drives pedagogical decision-making. As Wiggins and McTighe (1998) put it, "what would we accept as evidence that students have attained the desired understandings and proficiencies—*before* proceeding to plan teaching and learning experiences" (p. 8; italics in original).

Given that the term assessment and its subsequent processes have such a negative connotation with many instructors, it may be useful to conceptualize the processes of backward design differently, which is precisely what resources from Vanderbilt University (2011a; 2011b) offer. Another way to think about backward design would be to follow the sequence of goals, progress, and practice. Beginning with a learning objective-central focus, what are the content goals and skills-based goals that you want your students to leave the course with? That is, can you clearly articulate what you want your students

to be able to know and do by the end of the course? The ABCD model of learning objective creation presented in Table 2 can be help articulation here. Once learning goals are established, then how will student progress be monitored for acceptable evidence in support of the successful achievement of desired learning outcomes? How will measurement practices here be scaled to the number of students enrolled and the learning outcomes to be achieved? Then, after learning outcomes and evidence-based processes are in place, what pedagogical practices will be employed in an effort to achieve the learning outcomes? Here is where knowledge of best practices and the SoTL literature can help inform an instructor of the options and choices available, such as those exemplars presented in Table 4. The key to backward design is that the assessment of student learning is designed and determined immediately after learning goals are established, and assessment is centralized as opposed to the afterthought it may sometimes be in traditional course design.

## Examples from Different Disciplines

Different disciplines will certainly approach higher-level thinking strategies differently. Even within these topical differences, critical thinking, creative thinking, and practical thinking tasks can be generated. Table 5 shows different fields and how these types of thinking strategies can be individually addressed (Fink, 2003).

**Table 5**

**Questions Prompts Linked to Different Types of Thinking in Different Disciplines**

| Field | Critical Thinking | Creative Thinking | Practical Thinking |
|---|---|---|---|
| Art | Compare and contrast how Rembrandt and Van Gogh used light. | Draw a beam of light. | How could we reproduce the lighting in this painting in an actual room? |
| Biology | Evaluate the validity of the bacterial theory of ulcers. | Design an experiment to test the bacterial theory of ulcers. | How would the bacterial theory of ulcers change conventional treatment regimens? |

| | | | |
|---|---|---|---|
| History | How did events in post-WWI Germany lead to the rise of Nazism? | How might Truman have encouraged the surrender of Japan without A-bombing Hiroshima? | What lessons does Nazism hold for events in Bosnia today? |
| Literature | In what ways were Catherine Earnshaw and Daisy Miller similar? | Write an alternative ending to *Wuthering Heights*, uniting Catherine and Heathcliff in life. | Why are lovers sometimes cruel to each other and what can we do about it? |
| Mathematics | How is the presented mathematical proof flawed? | How might catastrophe theory be applied to human behavior? | How is trigonometry applied to the construction of bridges? |
| Psychology | Compare Freud's theory of dreaming to Crick's theory of dreaming. | Design an experiment to test a theory of dreaming. | What are the implications of Freud's theory of dreaming for your own life? |

Source: Fink (2003). Reprinted with permission.

For an example of what the structure might look like for a course designed using backward design principles (Fink, 2003; Wiggins & McTighe, 1998). Table 6 shows an example of a course design for an Electronics Lab course. Note that in this course design, the term, "technology," refers to both computer technology and electronic measuring technologies (Fink, 2003).

**Table 6**

**An Example of Backward Course Design Using an Electronics Lab Course**

| Goals | Feedback and Assessment | Teaching and Learning Activities |
|---|---|---|
| Develop familiarity with electronic techniques.<br>• Know the terminology.<br>• Operate the technology.<br>• Know and describe how the technology works. | • Paper-and-pencil tests.<br>• Lab: Do it.<br>• Paper and pencil: Describe. | • Readings, lectures.<br>• Lab exercises.<br>• Explain technology to others, orally or in writing. |

| | | |
|---|---|---|
| Use the technology to generate knowledge.<br>• Use technology to answer questions.<br>• Design technology for real projects.<br>• Assess validity of data techniques and information and answers.<br>• Identify and assess own assumptions. | • Teacher gives a question; students use technology to answer question.<br>• Teacher gives a question; students design technology.<br>• Teacher gives example of a procedure or results; students assess the data, information, techniques, and answers.<br>• Students identify and assess their assumptions. | For all of these:<br>• Practice doing, with feedback.<br>• Observe others.<br>• Assess own and others' "doing" performance.<br>• Assess data, information, techniques, answers, and assumptions. |
| Understand what knowledge is.<br>• Students create a model of knowledge.<br>• Test complex questions. | In discussion, teacher finds out if students can:<br>• Create a model of knowledge.<br>• Use their model to answer questions about knowledge. | For all of these:<br>• Reflect.<br>• Create a model of knowledge.<br>• Use their model to answer questions. |
| Personal and social nature of science.<br>• Understand the individual nature of science.<br>• Understand how social dynamics work in scientific work. | • Write an essay titled "Human Dimensions of the Work in Science".<br>• Have informal discussion, in small groups, outside of class. | For all of these:<br>• Journal writing.<br>• Reflect on the individual and social nature of their own small groups.<br>• Read accounts of the work of scientists.<br>• In small groups, discuss own activities, reading material. |
| Learning how to learn.<br>• What would you like to learn?<br>• In particular situations, (a) What would you learn, and (b) How would you learn that? | • Journals, essays.<br>• Teacher gives a hypothetical situation; students address: (a) What does one need to do, and (b) How would one learn that? | For all of these:<br>• Use context-rich problems.<br>• Use scientific method procedures. |

Source: Fink (2003).

## Summary

Fink (2003) offered these important changes to consider when designing (or re-designing) a course: (a) set more ambitious learning goals, (b) enlarge the kinds of learning activities you use, (c) create rich learning experiences, (d) provide multiple opportunities for in-depth reflection on the learning process, (e) find alternative ways to introduce students to the content of the course, (f) create a coherent and meaningful course structure, and (6) select or create a dynamic instructional strategy. Examination of these suggestions aligns well with the suggestions in Table 3.

A rich literature exists in many disciplines on the Scholarship of Teaching and Learning, and one resource recommended here is the international Professional and Organizational Development (POD) Network in Higher Education (http://www.podnetwork.org/). Many POD members are also authors of books and resources cited throughout this chapter. Be sure to consult disciplinary-based resources as well. Utilizing these resources while reflecting on student outcomes can yield valuable insights that can be incorporated into future offerings of the course, with beneficial outcomes for both students and instructors.

The main points to remember from this booklet center on the following:

- A precise definition of learning is essential to determining the level of effectiveness a course, instructor, or course design efforts may have on college-level student performance.
- Student learning outcomes provide the foundational structure and support upon which all else is constructed, including pedagogy choices and assessment strategies selected by an instructor.
- Regardless of the sequencing within the course design process, assessment of student learning should be definitively linked to observable changes in behavior that occur over time (e.g., a pre-semester post-semester design).
- Instructors enjoy a wide variety of pedagogical strategies to implement in the classroom, and such decisions should be directly linked to learning outcomes and assessment practices, utilizing best practice/evidence-based outcomes from the SoTL literature whenever possible.
- Whether using a traditional or backward course design sequence, a systematic and planful course design approach can yield substantial benefits for both instructors and students.

- Instructors from different disciplines will need to internalize and customize the course design advice provided here to fit local need and norms.

### Annotated Resource Listing

I recommend any of the following resources for additional reading about course design and related topics.

- Ambrose, S. A., Bridgese, M. W., DePietro, M., Lovell, M. C., & Norman, M. K. (2010). *How learning works: Seven research-based principles for smart teaching*. These authors provide a thorough overview of how prior student knowledge, organizational and motivational factors (from a self-directed perspective), mastery, feedback, and course climate contribute to student learning. One unique attribute of this work is that the suggestions are research-based.
- Anderson, L. W., & Krathwohl, D. R. (Eds.). (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives*. This text describes a revision to Bloom's original taxonomy of educational objectives, highlighting the cognitive dimensions of remembering, understanding, applying, analyzing, evaluating, and creating. The authors also highlight other dimensions (beyond the cognitive process dimension), including factual knowledge, conceptual knowledge, procedural knowledge, and metacognitive knowledge dimensions.
- Arter, J., & McTighe, J. (2001). *Scoring rubrics in the classroom: Using performance criteria for assessing and improving student performance*. To assist instructors in the assessment component of course design, these authors highlight the philosophy behind rubrics, rubric types, rubric creation and design, utilizing rubrics to grade student work, and using rubrics as a teaching aid to assist students in understanding instructor expectations.
- Bain, K. (2004). *What the best college teachers do*. Based on case studies of master teachers, this author describes how the best college teacher prepare to teach, what they expect of students, how they conduct class, how they treat their students, and how they evaluate both themselves and their students. The best teachers know the subject matter well and they know how to engage students and provoke higher-level performance from students because they believe that teaching matters and that student can learn.

- Bligh, D. A. (2000). *What's the use of lectures?* This author also takes a research-based approach and provides a timely summary about the effectiveness of lectures, and what types of objectives are well-met by lectures as well as those pedagogical goals that are difficult to achieve via lecturing. The research areas addressed here include the factors that influence student learning during lectures, lecture organization and style, student note-taking, and how lectures can be prepared and optimized in combination with other pedagogical approaches.
- Diamond, R. M. (2008). *Designing and assessing courses and curricula: A practical guide*. This author provides a comprehensive guide to both course design goals as well as assessment goals, introducing a conceptual model for course design and providing advice about the processes involved in designing, implementing, and assessing student learning experiences. Multiple resources are provided from varying disciplines and institutions to provide "real-life" examples of how instructors can implement the author suggestions provided.
- Fink, L. D. (2003). *Creating significant learning experiences: An integrated design approach to designing college courses*. This author provides one of the in-depth explanations of course design available, including detailed examples about the use of backward design as a method of integrating the entire course experience for the student. Also addressed are the structural and organizational challenges of changing the way teachers teach and are evaluated in the current higher education system.
- Gurung, R. A. R., & Schwartz, B. M. (2009). *Optimizing teaching and learning: Practicing pedagogical research*. For those interested in the contributions of and contributing to the Scholarship of Teaching and Learning literature, these authors address the value and various approaches that pedagogical research can take, focusing on various student learning outcomes. Also included is a primer on designing and conducting pedagogical research as well as providing various resources for a more in-depth pursuit of pedagogical research.
- Maki, P. L. (2004). *Assessing for learning: Building a sustainable commitment across the institution*. A critical component of any effective course design effort is the assessment processes, and this author addresses the institutional context and barriers that may occur when beginning a dialogue about teaching and learning, gather evidence to support claims, developing and reaching

consensus about learning outcome expectation, and the development of a culture or climate of educational inquiry that values assessment and the feedback it can provide on a programmatic level to encourage effective course design.

- Suskie, L. (2009). *Assessing student learning: A common sense guide* (2nd ed.). Focusing on the assessment component of course design, this author provides a comprehensive overview of the assessment fundamentals, including the design of student-based assessment, reviewing the best practices of many different techniques available in the assessor's toolbox, and the establishment and approach use of assessment benchmarks in summarizing and analyzing assessment results as part of an overall process or model of improving student learning.
- Svinicki, M., & McKeachie, W. J. (2011). *McKeachie's teaching tips: Strategies, research, and theory for college and university teachers*. This classic text provides a comprehensive view of the teaching and learning endeavor, including chapters on course design and preparation, the first class meeting, lecturing, grading and plagiarism, motivation and diversity, different teaching approaches, teaching large classes, laboratory sections, internships, online course design, and tips for the lifelong continuing education of the teacher.
- Walvoord, B. E. (2004). *Assessment clear and simple: A practical guide for institutions, departments, and general education*. The practices of assessment are addressed from multiple perspectives, including assessment from an institutional perspective, department and program perspective, and for general education efforts. Numerous appendices provide actual examples of assessment efforts from across the United States to provide "real-world" connections between assessment theory and actual practice.
- Weimer, M. (2002). *Learner-centered teaching: Five key changes to practice*. In this volume the author addresses what a true learner-centered approach to teaching would resemble, including issues such as the balance of power between teacher and student, course coverage, roles and responsibilities for teachers, and how to implement a more learning-centered approach to teaching. Appendices provide examples of a syllabus, handouts, and reading lists that exemplify a learner-centered approach to teaching.

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