

Better Teaching and Learning – By Design

Dee Fink, PhD Faculty Development Day, October 26, 2012

Resources

Links are available at www.med.wright.edu/aa/facdev/events/FacDevDay2012

Integrated Course Design and Significant Learning, by Dee Fink

Book: "Creating Significant Learning Experiences"

Guide: "Self-Directed Guide for Designing Courses for Significant Learning"

Website: "Designing Better Learning Experiences"

Learning Goals

A Primer for Writing Learning Goals

"A Primer on Writing Effective Learning-Centered Goals", by Robert Noyd, USAF Academy.

Taxonomies as Frameworks to Writing Learning Goals

Significant Learning Taxonomy: "What is Significant Learning?", Dee Fink's paper Bloom's Taxonomy: "Bloom's Taxonomy Actions Verbs", Clemson University's chart

Feedback/Assessment

Article: "Writing Multiple-Choice Questions for Continuing Medical Education Activities and Self-Assessment Modules", by Jannette Collins, MD, Med, Department of Radiology, University of Wisconsin – RadioGraphics, March 2006, 26, 543-551.

Manual: "Constructing Written Test Questions for the Basic and Clinical Sciences", Third Edition – National Board of Medical Examiners

Paper: "Procedures for Assessing Significant Learning - Some Options", by Dee Fink

Teaching/Learning Activities

Audience Response System (Clickers) website: "Classroom Response Systems" – by Derek Bruff, Director of the Vanderbilt University Center for Teaching.

Case InQuiry (IQ) paper: "The "New" PBL: Case InQuiry (IQ)" by Amy Wilson-Delfosse, Associate Professor of Pharmacology, Assistant Dean for Basic Science Education, Case Western Reserve University School of Medicine.

Peer Instruction paper: "Farewell, Lecture?" – by Eric Mazur, Department of Physics, Harvard University – Science, 323 (2 January, 2009), 50-51.

Problem-Based Learning guide: "Problem-Based Learning: A Practical Guide", by M. Davis and R. Harden, Centre for Medical Education, University of Dundee, Scotland – AMEE Education Guide.

Team-Based Learning website: "Team-Based Learning Collaborative"



Introduction

When we teach, we engage in two closely related, but distinct, activities. First, we design the course by gathering information and making a number of decisions about the way the course will be taught. Second, we engage in teacher-student interactions as we implement the course we have designed.

In order to teach well, one must be competent in both course design and teacher-student interactions. However, of these two activities, our ability to design courses well is usually the most limiting factor. Most of us have had little or no training in how to design courses.

In addition, during the last two decades, research on college teaching and learning have led to some new ideas about course design that have, in essence, "raised the bar" in terms of what is possible. These include ideas such as active learning, significant learning, and educative assessment.

Backward Design

The term Backward Design was coined by Grant Wiggins in 1998. Backward design is a method of designing educational curriculum by setting goals before choosing instructional methods and forms of assessment. Backward design of a curriculum typically involves three stages:

- 1. **learning goals:** identify the results desired
- 2. **feedback/assessment:** determine acceptable levels of evidence that support that the desired results have occurred
- 3. teaching/learning activities: design activities that will make desired results happen

Integrated Course Design

Dee Fink proposes the model of Integrated Course Design, in which the components are the same as those found in other models of instructional design: analyze the **situational factors**, formulate the **learning goals**, design the **feedback and assessment** procedures, and select the **teaching/learning** activities. What is distinctive about this model is that these components have been put together in a way that reveals and emphasizes their inter-relatedness.





Situational Factors

The first component in Integrated Course Design is to gather information about the Situational Factors (e.g., how many students are in the course, what kind of prior knowledge are the students bringing to the course about this subject, etc.) This information is then used to make the three major decisions about the course: learning goals, feedback/assessment and teaching/learning activities.

Learning Goals

After you have gathered the information about the situational factors, your first decision is about the learning goals, i.e., what you want students to get out of the course. What is important for them to learn and retain, 2-3 years after the course is over? What kind of thinking or application abilities do you want them to develop? How do you want them to keep on learning after the course is over?

Feedback and Assessment

Using the principle of "Backward Design," we will next turn to decisions about feedback and assessment. The basic question here is: What will students do to demonstrate they have achieved the learning goals we set for the course? This will usually involve some multiple-choice-question tests but we will probably need to include other activities as well. The advantage of working on the feedback and assessment at this early stage of course development is that when we become clear about what constitutes successful student performance, it is much easier to develop effective teaching/learning activities.

Teaching/Learning Activities

Then we need to formulate the appropriate and necessary teaching/learning activities. If we have significant learning goals and effective assessment procedures, we will most likely need to incorporate some kind of active learning into the course.

Integration

And finally, we need to check our course design for integration to make sure all the components are in alignment and support each other. Are the learning activities consistent with all the learning goals? Are the feedback and assessment activities consistent with the learning goals and the learning activities?

Backward Design Tool: The 3-Column Table

The 3-column table is a primary tool that operationalizes the Backward Design principles, and is a good tool for checking on integration. First, fill in a list of your learning goals for the course. Second, for each major learning goal, identify how you would know whether students have achieved that kind of learning, i.e., what kind of feedback and assessment can you use? Third, again, for each major learning goal, identify what students will have to do to achieve that kind of learning. You will often find that the assessment and the learning activity are the same or very similar.

The 3-Column Table									
1. Learning Goals What do you want students to learn?	2. Feedback/Assessment What will students need to do, for you and them to know whether they have learned that?	3. Teaching/Learning What will students need to do, to learn that?							



Learning Goals: Taxonomies as Frameworks



Having taxonomies as a conceptual framework for identifying the multiple ways in which learning can be significant, can help teachers decide which of the various levels of learning they want to support and promote in a given course or learning experience. When students and teachers think about what students can learn that is truly significant, their answers usually include, but do not focus on, "understand and remember" kinds of learning. More often, they emphasize such things as critical thinking, learning how to creatively use knowledge from the course, learning to solve realworld problems, changing the way students think about themselves and others, realizing the importance of life-long learning, etc.



Feedback/Assessment: Educative Assessment

In a content-centered course, mid-terms and a final exam are usually considered sufficient feedback and assessment for the teacher to determine whether the students "got it" or not. But a learning-centered course calls for a more sophisticated approach to this aspect of course design.

A set of feedback and assessment procedures collectively known as "educative assessment" is needed to go beyond "audit-ive-type assessment" (that which is designed solely to give the teacher a basis for awarding a grade). Educative assessment actually enhances the quality of student learning. In the diagram below, the four key components of educative assessment are shown:



Forward-Looking Assessment/Authentic Tasks

Forward-Looking Assessment incorporates exercises, questions, and/or problems that create a reallife context for a given issue, problem, or decision to be addressed. To construct Forward-Looking Assessment questions or problems, the teacher has to "look forward," beyond the time when the course is over, and ask: "In what kind of situation do I expect students to need, or to be able to use this knowledge?" Then, create a question or problem that represent authentic tasks, i.e. that replicates this real-life context as closely as possible. The problem also should be somewhat openended and not totally pre-structured. If necessary, certain assumptions or constraints can be given, in order to be able to assess the quality of student responses.

Self-Assessment

It is also important for teachers to create opportunities for students to engage in self-assessment. Later in life, students will need to assess their own performance, and they should start learning how to do that while in the course. You may want the class to do this initially in groups, and later individually. Somewhere along the way, students need to generate—and perhaps discuss appropriate criteria for evaluating and assessing their own work.

Criteria

For each assessment, you need to identify criteria and levels of standards that will distinguish exceptional achievement from poor performance.



Feedback

As the students work to learn how to perform well, teachers need to provide feedback. High quality feedback will have the characteristics of "FIDeLity" feedback:

- **F**requent: give feedback daily, weekly, or as frequently as possible.
- Immediate: get the feedback to students as soon as possible.
- **D**iscriminating: make clear what the difference is between poor, acceptable, and exceptional work.
- Loving: be empathetic in the way you deliver your feedback.

Teaching/Learning Activities: Active Learning

Often as teachers think about what should happen in a course, we have used the traditional pattern of "lectures and discussions." Some courses are heavy on lectures; others lean more toward discussion. But to create significant learning, we will need new tools, new kinds of teaching and learning activities. We need to understand, and then learn, how to incorporate more active learning into our courses. In essence, the concept of active learning supports research that shows that students learn more and retain their learning longer if they acquire it in an active rather than a passive manner.



What do we mean by "active learning"? Active-learning advocates Bonwell and Eison (1991) describe active learning as "[involving] students in doing things and thinking about the things they are doing." By "doing things," they are referring to activities such as debates, simulations, guided design, small group problem solving, case studies, etc.

When students listen to a lecture or read a textbook, they are receiving "Information and Ideas" an important part of the learning process but also one that is relatively passive. To make the learning more active, we need to learn how to enhance the overall learning experience by adding some kind of experiential learning and opportunities for reflective dialogue.

In order to create a complete set of learning activities capable of achieving significant learning, we need an enlarged and more holistic view of active learning—one that includes "getting information and ideas" as well as "experience" and "reflection."



Two principles should guide our choice of learning activities. First, an effective set of learning activities is one that includes activities from each of the following three components of active learning: information and ideas, experience, and reflective dialogue. Second, we should try to find direct kinds of learning activities, whenever possible. Indirect, or vicarious, forms may be necessary in some cases. But when we can find direct ways of providing active learning, the quality of student learning expands.



Instructional Strategy: The Castle Top

One important conceptual distinction needs to be made between teaching techniques and an instructional strategy. A teaching technique is a discrete, specific teaching activity. Lecturing, leading discussions, setting up small group work all are teaching techniques. An instructional strategy, on the other hand, is a set of learning activities, arranged in a particular sequence so that the energy for learning increases and accumulates as students go through the sequence.

This usually requires, among other things, that you set up some activities that (a) get students ready or prepared for later work, (b) give them opportunities to practice—with prompt feedback— doing whatever it is you want them to learn to do, (c) assess the quality of their performance, and (d) allow them to reflect on their learning.

To assist in this, the "Castle Top" diagram below can help you develop a sequence of in-class and out-of-class activities. The question marks ask you to identify the learning activity for each in-class and out-of-class block of time. The goal is to create a sequence of activities that build on each other:

The Castle Top												
In-Class Activities:	?		?		?		?		?		?	
Out-of- Class Activities:		?		?		?		?		?		•

- It makes a big difference what activities you put together and how you sequence them, i.e., what you put 1st, 2nd, 3rd, etc.
- You will not be able to achieve powerful teaching and learning, without a powerful teaching strategy.



Summary



good design are in place.