Designing Courses to Promote Deep, Intentional Learning

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Workshop Goals

Participants will:
• Become familiar with some key research related to teaching and learning.
• Reflect on the success of their own approaches to teaching and learning.
• Learn ways to create or modify a course so that it reflects an emphasis on learning vs. an emphasis on teaching.
• Learn to use a model to create or modify a course with a focus on situational factors, course goals, effective feedback, and deliberate sequencing of learning activities.
• Learn how to apply the research on deep learning through careful sequencing.
• Understand that all course components must be aligned to promote learning.
• Enjoy interacting with like-minded colleagues.

Agenda

• An Overview/Introduction to Backwards Design and Dee Fink's Taxonomy for Course Design
• Three-Step Interview: Course Problems
• Roundtable: Course Planning/Situational Factors
• Three Other Important Planning Components: Goals and Objectives, Assessment/Evaluation, Activities/Assignments

Agenda, cont.

• The Cooperative Learning Model as related to Examples:
• Jigsaw
• Homework Pass (if time permits)
• Double-Entry Journal
• Numbered Heads Together/Structured Problem-solving: Building in Deep Learning
• Concluding Thoughts

Warning!

Do not do unto your students what I am about to do to you. Begin slowly with cooperative/active learning.

My Discipline-Specific Applications

<table>
<thead>
<tr>
<th>Source/Activity/Assignment</th>
<th>Ways I could use it</th>
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</table>
The Quiet Signal

- The teacher signals for quiet, often with a raised hand.
- Students complete their sentences.
- Students raise their hands and alert classmates to the signal.

The Three Step Interview

- A interviews B for the specified number of minutes, listening attentively and asking probing questions.
- At a signal, they reverse roles with B interviewing A for the same number of minutes with the same question(s).
- At another signal, each pair turns to another pair, forming a group of four (quad). Each member of the quad introduces his or her partner, highlighting the most interesting points.

Interview Questions

- Name and courses taught or other responsibilities? (Please keep this brief, perhaps focusing on the course you teach most often).
- What are common problems you face as a teacher? What do you think other teachers face?

Extra time?

Explain what you think the purpose of a syllabus is?
Do you think that students have the same views about a syllabus?

Always remember to plan for a "Sponge" or Extension Activity

First Things First

Always explain the structure to the students before you give them the task

Monitoring

When you assign group work where issues are discussed, you can easily gain in-depth insights into your students' learning and attitudes. Often comments you have overheard as you move from group to group can be integrated into a mini-lecture taking into account what you have learned about your students' learning.
Three-Step Interview: Various Discipline Applications

- Should Nora in *The Doll House* have left her husband?
- What are the most important qualities of an effective leader?
- Was the United States justified in dropping the atomic bomb on Nagasaki?
- Should wolves be reintroduced into Yellowstone National Park?
- Should the United States adopt a flat tax system?
- What are some of the ethical or societal issues related to human gene therapy? What is your opinion about any of these issues?
- How has the current business environment affected managerial accounting?

Pause for Individual Work
(Please turn to the "Applications Grid" behind the first tab)

Three-Step Interview
Your Class Applications:

<table>
<thead>
<tr>
<th>Issue/Activity/Issue</th>
<th>Ways I could Use:</th>
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What are some Common Teaching Problems You—or Others—Face at your Institution?

Common Teaching Problems
(from Dee Fink and Associates)

- **Lack of Interest:** "Students are bored with my class and lose interest quickly."
- **Poor Preparation:** "Students don’t do the assigned readings before class."
- **Poor Retention of Learning:** "Students do well on the test, but on the next test or in the next course, they seem to forget everything they learned earlier."

Possible Solutions to Problems

**Lack of Interest:***
1. Enhance the teacher’s lecturing skills
2. Use more material from "cutting edge" research
3. Re-design the course to replace lecturing with more active learning
Possible Solutions to Problems

**Poor Student Preparation:**
1. Assign more severe penalties for not doing the readings beforehand.
2. Give students a pep talk.
3. Re-design the course to give students a reason to do the readings.

**Poor Retention of Learning:**
1. Make the tests better (or tougher).
2. Require students to complete a refresher course.
3. Re-design the course to give students more experience with what they have learned.

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**Stages in the Backward Design Process**

1. Identify desired results.
2. Determine acceptable evidence.
3. Plan learning experiences and instruction.

To begin with the end in mind means to start with a clear understanding of your destination. It means to know where you're going so that you better understand where you are now so that the steps you take are always in the right direction.

Stephen Covey, *7 Habits of Highly Effective People*

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**Establishing Curricular Priorities**

- Worth being familiar with
- Important to know and be able to do
- "Enduring" understanding
- Essentials

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Dee Fink's book, *Creating Significant Learning Experiences* is an Excellent Tool for Re-thinking your Course Design.

[Link to Dee Fink's book]

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Call for report outs by suit (4 people) 2 clubs, 2 C

Write Barbara for folder "contents"
Key Components of Interactive Course Design

- Learning Goals
- Teaching & Learning Activities
- Feedback & Assessment

Situational Factors

Criteria of “GOOD” Course Design

- Significant Learning
- Learning Goals
- Teaching and Learning Activities
- Feedback & Assessment
- Active Learning
- Educational Assessment

Situational Factors

Roundtable
- The teacher poses an open-ended question.
- Each group has one piece of paper and one pen.
- The first student writes one response, saying it out loud.
- He or she passes the paper to the left where a second student writes a response, etc.
- The “brainstorm” continues until time elapses.
- Students may say “pass”

Roundtable Question
What are the “situational” factors you need to take into account when planning a course?

Stand up and Share
- The teacher calls out the number/suit/color of the person who will serve as each team’s spokesperson.
- That person rises and in rapid roundrobin fashion, each team shares its ideas.
- Several rotations may occur.
- The teacher changes the spokesperson by calling another “identity.”
- When a team’s ideas have been fully shared, the spokesperson sits down.

Situational Factors
- Nature of the Subject
  - Is this subject primarily theoretical, practical, or some combination?
  - Is the subject primarily convergent or divergent?
  - Are there important changes or controversies occurring within this field of study?
- Characteristics of the Learners
  - What is the life situation of the learners (e.g., working, family, professional goals)?
  - What prior knowledge, experiences, and initial feelings do the students have with this subject?
  - What are their learning goals, expectations, and preferred learning styles?
Situational Factors

- Characteristics of the Teacher(s)
  - What beliefs and values does the teacher have about teaching and learning?
  - What is his/her attitude toward the subject, students?
  - What are his/her teaching skills?
  - What level of knowledge or familiarity does he/she have with this subject?

At your leisure, focus on Page 7 (Situational Factors to Consider) when working on your course.

Pause for Individual Work
(Please turn to the “Applications Grid” behind the first tab)

Roundtable
Your Class Applications:

<table>
<thead>
<tr>
<th>Structure/Activity/Assignment</th>
<th>How I could use it</th>
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Fink’s Taxonomy of Significant Learning

Key Components of Interactive Course Design

Learning Goals

Teaching & Learning Activities

Feedback & Assessment

Situational Factors
Clearly describe and communicate goals for the course. What do you want your students to "look like" by the end of the semester? Five years after the course has ended?

- What should they know about the subject?
- What should they be able to do with what they know?
- What should they value about the discipline?

Writing Learning Goals

- Select one course you teach and write 1-3 learning goals using Fink's Taxonomy.
- Write a goal not currently in your course.
- Use the following preface: "BY THE END OF THIS COURSE, MY HOPE IS THAT STUDENTS WILL..."
- Pay attention to the verb used.
- Make it concrete and specific.

Use the worksheet on page 11 ("Questions for Formulating Significant Learning Goals") if desired.

Key Components of Interactive Course Design

- Learning Goals
- Teaching & Learning Activities
- Feedback & Assessment

Situational Factors

Two Types of Assessment

- Formative: in the process, students can adjust their long-term goals, change something important, and be given feedback often.
- Summative: end, conclusive, too late, should be often.

Classroom Assessment Techniques (CATs)
can help teachers learn what students know or don't know or misunderstand.

- Learner-Centered
- Teacher-Directed
- Mutually Beneficial
- Formative
- Context-Specific
- Ongoing
- Rooted in Good Teaching Practice

Background Knowledge Probe

Purpose

- (For students) BKP's highlight key information to be studied, offering both a preview of material to come and a review of prior knowledge;
- (For teachers) BKP's help determine the best starting point and the most appropriate level for a lesson;
- (For both) BKP's can be used for pre and post-lesson assessment of learning.

"Make 'grade writing' - OK or 'red' = students get credit when they explain the problem before next paper is due!"
Law 220 Bio Sheet
(from Capt Raina Contractor, US Air Force Academy)

- Name:
- How you would like me to address you:
- Home phone:
- Finish the following sentence: I came to this institution because

- Career goal chosen once you graduate:
- Extra-curricular activities (any goal you try and get one and watch each of my students doing "that thing"—I'm not always successful, but what are you doing that I should come to watch?—)
- Favorite book & movie:
- The best teacher I've had at this institution did these things:
- Some things I would like to learn about are:

Please attach a photograph of your choice below the dotted line. Please check here ( ) if you want your photograph returned at the end of the semester.

Focused Listing

- **Purpose:** This tool helps determine what learners recall about a specific topic, including the concepts they associate with the central point. Working in pairs can help students build their knowledge base and clarify their understanding. This technique can be used before, during, or after a lesson.
- **Steps:** Ask students to write the key word at the top of a page and within a set time limit (usually 2-3 minutes) to jot down related terms important to understanding that topic.

Assessment of Focused Listing:

(Open-ended)

Compare students' lists with a master one you have generated, looking at both the quantity and quality of their responses. Categorize responses into "related" or "unrelated" or "appropriate" or "inappropriate" stacks. Consider compiling a master list and having students then sort them by categories.

Other Low-Preparation CATs:

**Directed Paraphrasing**

- Students put into their own words key concepts or parts of a lesson for a specific audience or purpose (e.g., Explain the concept of "corporation" to high school students; Explain an "irrevocable trust" to a group of retirees);
- The responses can be sorted as "confused," "minimal," "adequate," or "excellent."

Focused Listing Applications in Various Disciplines

Jot down relevant associations with the following:

- Antenna
- Symbolism
- Astronaut
- Myth
- Reinforcement
- Corporation
- Random Distribution
- Electrical Circuits
- Momentum
- Bonding

Application Cards

- **Students** give one or more real-world applications for an important principle, generalization, theory, or procedure.

  Examples:
  - (Business) Stephen Covey recommends "Win-win performance agreements": give two specific applications, one related to current news and one related to your own life.
  - (Government) Give a concrete example of the concept "due process."

- The responses can be sorted as "unacceptable," "marginal," "adequate," or "excellent."
Pause for Individual Work
(Please turn to the “Applications Grid” behind the first tab)

Teaching Goals Inventory
Cyber Cats
http://www.uiowa.edu/~centeach/tgi

Feedback and Assessment:
“EDUCATIVE ASSESSMENT”

Criteria and Standards
- Clear and appropriate assessment criteria and standards are necessary.
- Develop rubrics when possible and construct a 2-5 point scale with descriptive statements of good and poor versions of traits
- Identify criteria that count in evaluation
- Try out your scale with a sample of students or colleagues and revise.
Forward Looking Assessment

- Focus on what students should be able to DO in the future.
- Students imagine themselves in a situation where people are actually using this knowledge.
- Create assignments and tests that require judgment/exploration rather than reciting or restating facts.
- Focus on real-life context
- Focus assessment on integrated use of skills

Self Assessment

- Create multiple opportunities for students to engage in self-assessment of their performance.
- Students need to identify relevant criteria for assessing their work and the work of others.
- Students need to practice using the criteria for quality on their own work.

Punctuated Lectures

- How fully and consistently were you concentrating on the lecture during these few minutes? Did you get distracted at any point? If so, how did you bring your attention back into focus?
- What were you doing to record the information you were receiving? How successful were you?
- What were you doing to make connections between this “new” information and what you already know?
- What did you expect to come next in the lecture and why?

Paired Talk-Aloud Problem Solving

- Have students pair.
- A student takes a difficult problem and talks through it, going into his/her thought process.
- The second student does the same with a second problem.

Minute Paper for Papers

Before students hand in their papers, they answer questions or complete sentences such as the following:

- I’m most satisfied with, I’m least satisfied with … I’m having problems with …
- In writing this essay, what did you learn that surprised you? When editing your paper, what were you unsure about?
- What changes would you make to this assignment?
- This lesson/assignment is important to my role as an Air Force officer because…

FIDeLity Feedback

- Frequent
- Immediate
- Discriminating (based on criteria and standards)
- Lovingly or supportive approach used
Pause for Individual Work

Work on some embedded Classroom Assessment Techniques for the Course you are Designing or Redesigning OR select one of the options on Page 15 ("Procedures for Educative Assessment")

Key Components of Interactive Course Design

INTEGRATING YOUR COURSE
1. Make sure the three components reinforce and support each other.
   - Use the 3-column table to ensure this.

<table>
<thead>
<tr>
<th>LEARNING GOALS</th>
<th>FEEDBACK &amp; ASSESSMENT</th>
<th>T/LACTIVITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
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<tr>
<td>2</td>
<td></td>
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<tr>
<td>(3, etc)</td>
<td></td>
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</tbody>
</table>

2. Use a powerful "Teaching Strategy."

Fink's Taxonomy of Significant Learning

Cooperative Learning is
- a structured form of
- small group problem solving that
- incorporates the use of heterogeneous teams,
- maintains individual accountability,
- promotes positive interdependence,
- instills group processing, and
- sharpens social skills

What is Cooperative Learning?

Enhancing Learning—and more!—Through Cooperative Learning
Understanding Cooperative Learning
http://www.nea.org/he/edvol03/edvo1203/front.html
Group Roles

- Facilitator, Discussion Leader
- Reporter, Spokesperson
- Recorder, Scribe
- Folder Monitor

Group Formation

- No: Students Self-Select
- Random
- Teacher-selected
- Combination of teacher and students by taking into account requests

The National Teaching & Learning FORUM


Key Elements that Foster a Deep Approach to Learning

- Motivational Context: Students' motivation is intrinsic, and they experience a need to know something.
- Active Learning: Students are actively involved, rather than passive.
- Interaction with Others: There are opportunities for exploratory talk
- A Well-Structured Knowledge Base: Content is taught in integrated wholes and related to other knowledge, rather than presented in small separate pieces.

― Oxford Center for Staff Development
Three Sequenced Activities to Promote Deep Learning

1. Homework using a graphic organizer processed through an in-class jigsaw
2. Homework Pass using a graphic organizer to focus discussion
3. Homework using a graphic organizer (a double entry journal) processed in class through pair work.

Four Characters

Charlotte
Wilbur
Fern
Templeton

Four Characters

Antigone
Ismene
Creon
Haemon

Bloom's Taxonomy of Educational Objectives

1. Knowledge
2. Comprehension
3. Application
4. Analysis
5. Synthesis
6. Evaluation

Three-Part Jigsaw: Organic Molecules that are Polymers of Carbon

- Carbohydrates
- Lipids
- Proteins
Jigsaw
(Pharmacy, Nursing, Health Sciences, or Medicine)

Medication for Seasonal Allergies
- Antihistamine
- Decongestant
- Cromolyn sodium nasal spray
- Corticosteroid nasal spray (Rx)

Cholinesterase Inhibitors Used to Treat Alzheimer’s Disease
- Donepezil
- Tacrine
- Rivastigmine
- Galantamine

An Accounting Jigsaw:
Four methods of depreciation
- Straight-line
- Units-of-production
- Sum-of-the-year’s-digits
- Double declining balance

Jigsaw Applications

Psychology: Underpinnings of Childhood Moral Development:
- Cognitive
- Social
- Emotional
- Biological

Botany: Major Plant Groups
- Nonvascular land plants
- Seedless vascular plants
- Vascular plants with “naked seeds” (gymnosperms)
- Vascular plants with flowers and protected seeds (angiosperms)

Identify some differences between an instructor-based class and a learning centered class

Students are: Instructor-focused Learning-centered

Teachers are:

Student learning is:

Classroom environment is:

Homework Pass

- In your team, read the responses on the paper you receive.
- Do you agree or disagree with each statement? Why or why not?
- Is each response similar to the response you wrote as a team?
Learning is defined as stabilizing through repeated use, certain appropriate and desirable synapses in the brain. p. 5


Numbered Heads Together/Structured Problem-Solving

- Each student has an assigned identity within a team/group: a number, playing card suit, color, etc.
- The students complete a task together.
- The group prepares to respond, making certain that each group member can serve as the spokesperson.
- Responses occur by number, suit, or color.
Structured Problem-Solving
Reflect on the courses you teach:

What can teachers do to get students deeply into the knowledge base? How do you get them to come to class prepared, for example? What assignments and activities do you use? Be certain that everyone on your team is ready to serve as the spokesperson.

A Rapid Report-Out Method

Three
Stay, One
Stray

A Rapid Report-Out Method

"Luck of the Draw"

Gallery Walk

Pause for Individual Work

Design some active learning approaches that you can use in the course you are designing or redesigning OR go to page 23 and work on the diagram "Worksheet for Designing a Course.

Some Advice about Active Learning Activities and Group Work
The End!

Happy Teaching!
<table>
<thead>
<tr>
<th>Structure/Activity/Assignment</th>
<th>My ideas/notes</th>
<th>Ways I Could Use It</th>
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<tbody>
<tr>
<td>3-step interview</td>
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<td>What challenges do you experience when teaching today?</td>
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<td></td>
<td>In what ways is teaching different today</td>
</tr>
<tr>
<td>Roundtable</td>
<td></td>
<td>Key ideas from the lecture</td>
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<td></td>
<td>Chairs of ideal teacher/ideal student (1st day of class)</td>
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<tr>
<td>Focus listing, divided</td>
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<tr>
<td>paraphrasing, or apples cards</td>
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</tbody>
</table>
Identify some differences between an instructor-based class and a learning centered class

Students are:
Instructor-focused

Learning-centered

Teachers are:

Student learning is:

Classroom environment is:
<table>
<thead>
<tr>
<th>Critical Points</th>
<th>Response</th>
</tr>
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<tbody>
<tr>
<td>&quot;Learning Styles&quot; have been over-emphasized in the research literature.</td>
<td>I would agree! I have never been comfortable with so many different typologies. I have taken courses in the Myers-Briggs instrument, 4-MAT, etc., and I have never understood the distinctions and values. Other than the truism that we should vary our teaching methods, the learning styles information has been of little practical value for me as a faculty developer and as a teacher.</td>
</tr>
<tr>
<td>Many students don't get the point of what they are reading because they aren't looking for it.</td>
<td>As a composition/literature teacher, this fact is no revelation to me. I am concerned now in my Eng 211 class that students truly learn to apply literary concepts and that they learn to explicate a piece of literature.</td>
</tr>
<tr>
<td>Students often adopt a surface approach to reading by seeking facts they will be tested on, not the underlying meaning.</td>
<td>Issues of intrinsic versus extrinsic motivation have always concerned me. I found the adult military students I taught overseas to be far more motivated--on the whole--than the cadets I have observed or taught so far. I can understand why this is the case, but it is always troubling to a teacher when students do not share her passion for the subject matter. I use IP points to motivate cadets to prepare for my classes, tying them in with structured pre-assignments.</td>
</tr>
<tr>
<td>Researchers examined a key question, &quot;What does it take to be good at learning?&quot;</td>
<td>A good question!</td>
</tr>
<tr>
<td>Metacognition--thinking about one's thinking--appears to lie at the heart of learning, and a predisposition toward it appears to be related to the learning environment rather than to learning styles.</td>
<td>No comment . . . I'm eager to read further.</td>
</tr>
<tr>
<td>Researchers looking at the question above have found consistent patterns that suggest that context and content will foster or</td>
<td>I was struck by the contrast between the humanities fostering a deep approach and the sciences emphasizing a superficial</td>
</tr>
</tbody>
</table>