Instructing

- Last week we talked about:
  - The Hook
  - Name the Steps
  - Board - Paper
  - Circulate
  - Work the 4 Corners

This week . . . These Techniques

- Break it Down
- Ratio
- Check for Understanding
- At Bats

Break it Down

- You use this technique in response to a student error at the moment the incorrect answer happens.
- When a learner error occurs, simply repeating the original question won’t be helpful unless the student failed to hear you.
- But what to do? As soon as you recognize an error or a guess, conceptualize the original material as a series of smaller, simpler pieces.
- Go back and ask a question or present information that bridges the part of the material that you think was most likely to have caused the error, thus building the learner’s knowledge back up from a point of partial understanding.
Break it Down Techniques

- Provide an example.
- Provide context.
- Provide a rule.
- Provide the missing (or first) step.
- Rollback. Sometimes it's sufficient to repeat a student's answer back to her.
- Eliminate false choices.

In any event, do it quickly and don't let the learner off the hook!

Ratio

- One instructor's goal is to cause learners to do as much of the cognitive work -- the writing, the thinking, the analyzing, the talking . . . as possible.
- The proportion of the cognitive work learners do in your classroom is known as your Ratio.
- If you embrace Ratio, you'll find yourself rarely completing a problem at the board without input of your learners.

In Ratio

- Unbundle -- Break questions into smaller parts to share the work out to more learners and force them to react to one another.

"Who can tell me the three dimensions of a cylinder?" . . . Try a sequence like this:
  "How many dimensions to a cylinder, James?"
  "Good. What's one dimension, Shana?" "And what's another, Diamond?"
  "That leaves what, Terrance?"
In Ratio . . . most practice possible

• Half-statement. Rather than speaking in complete ideas, express half of an idea and ask a student to finish it:

"So the next step is to combine sentences with a . . . tell me please, John."

In Ratio . . . most practice possible

• What's next? The fastest way to double the number of questions learners get to answer is to ask about process as often as product

• That is, addressing both how to solve a step (or what the answer to a step in a problem is) and what step comes next.

The hardest “what’s next question” is the one for the first step in any solution: “Okay, what do I do first?”

In Ratio . . . most practice possible

• Feign ignorance. Turn the tables, and pretend you don’t know. Make the learner play instructor and narrate what you might explain:

“So, now can I just add my numerators?”

“A theme is just a summary of what happens in the story, right?”
In Ratio . . . most practice possible

• Repeated examples. Instructors often ask for examples of:
  a term they're defining, a concept in action, a character's
  trait.
• They less often ask learners for another example,
  especially one that's different from the first. This technique
  can be especially rigorous when you set the terms for how
  the second example should be different.

  A instructor might do this:
  • "How do you close a sale?
  • "Ok, who can tell me another way to close the
    same sale?"

In Ratio . . . most practice possible

• Rephrase or add on. Second drafts are better than first
drafts because some of the most rigorous thinking goes
into making ideas more precise, specific, and rich.
• Replicate this in the classroom by asking a learner to
rephrase and improve an answer she just gave or by
asking another student to revise or improve a peer's
answer.

In Ratio . . . most practice possible

• Whys and hows. Asking why or how instantly pushes
more, and more rigorous, work onto learners by forcing
them to explain the thinking that solved (or failed to
solve) the problem.
• Supporting evidence. There's far more cognitive work to
be done in supporting an opinion than in holding one, in
testing its logic than in arguing for it.

  Ask your learners constantly to explain how the
  evidence supports them. Or give them a position or a
  variety of opinions and ask them to assemble
  evidence in support.
Check for Understanding

• The technique could more accurately be described as Check for Understanding and Do Something About It Right Away.
• Questioning is gathering data. Check for Understanding requires you to think of the answers to your questions as data.
• The second step is “responding to the data.” Inherent in this is analyzing the data you gathered through questioning before acting.

Then do something . . . Right away.

Check for Understanding . . . Gathering data

• Ask Questions . . .
• Observe -- look for patterns of mistakes or understanding . . . Usually in written work.

Some instructors organize their assignments so the areas they really want to check always are located in the same place on a paper. Like placing that key concept problem on the top line of the second page.

Check for Understanding . . . Responding to data

• The second part of Check for Understanding involves responding to the data you collect.
• It's worth noting that all the recognition in the world won't help if it does not result in action.

The shorter the delay between recognizing a gap in mastery and taking action to fix it, the more likely the intervention is to be effective.
Check for Understanding . . .
Responding to data

- Actions you can take . . .
- Reteach using a different approach.
- Reteach by identifying and reteaching the problem step.
  - "I think the place we’re struggling is when we get to remainders, so let’s work on that a little more."
- Reteach by identifying and explaining difficult terms:
  - "I think the term denominator is giving us some trouble."

And

Check for Understanding . . .
Responding to data

- Reteach at a slower pace:
  - "Let’s read that list of words again. I’m going to go really slowly, and I want you to make sure you hear me read the suffixes. Then I’m going to ask you to ... ”
- Reteach using a different order:
  - "Let’s try to put the key events in the story in reverse order this time."

And

Check for Understanding . . .
Responding to data

- Reteach identifying learners of concern:
  - "We’re going to push on to the problems in your packet now, but I want a couple of you to come work with me at the front. If I say your name, bring your packet up here [or meet me at lunch]."
- Reteach using more repetitions:
  - "It seems that we’re able to identify the genre most of the time, but let’s try to get a bit more practice. I’m going to read you the first two sentences to ten imaginary stories. For each one, write down the genre you think it is and one reason for your answer."
At Bats

- We sometimes teach all the way to the part where learners can ingrain the skill, and we stop. The learners try it once, and we say, "Good. you've got it!" or worse. "We're running out of time. Try it at home, and make sure you've got it!"

OOPS! Big Mistake on the important things.

At Bats says the more "At Bats" we have the better batters we become.

At Bats . . . Using it

- How to implement this technique . . .
- Go until they can do it on their own.
- By the end of independent practice, learners should be able to solve problems to the standard they'll be accountable for, and entirely on their own.
- Use multiple variations and formats.
- Learners should be able to solve questions in multiple formats and a significant number of plausible variations and variables.

And More

At Bats . . . Using it

- Grab opportunities for enrichment and differentiation.
- As some learners demonstrate mastery faster than others, be sure to have bonus problems ready for them to push them to the next level.
And now . . .

Advanced Methods -- Part II

Contract Learning
Growth Groups
Adventure Learning
Distance, Open, and Flexible Learning
Job Aids

Objectives

• Describe advanced training techniques used in off-the-job training.
• Explain when to use each of the techniques.
More Advanced Methods

- Contract learning. Mature learners decide what, how, and how much they will learn and prepare a contract specifying these details.
- Growth groups (Study Groups). Groups designed to promote knowledge of self and to improve interaction with others.
- Distance learning. The specialized techniques used to promote learning when instructor and learner are separated by distance.

Contract Learning

I’m doin’ this on my own . . . With your approval, of course . . .
**Contract Learning**

- Based on an agreed contract between the instructor and the learner.
- It is a working agreement between learner and instructor concerning how the learner will meet specific learning objectives.
  - What the student will learn.
  - Time period for completion.
  - What he/she will do to meet these objectives.
  - How the instructor will assess their learning.

**Contract Learning**

- May be considered an instructional method in its own right or it may be regarded more as a management device for other advanced learning processes.

> It is considered a management device because the learner can choose any number of different instructional methods to help them meet the requirements of the learning objectives.

**Negotiating the Learning Contract**

- Determine the learning objectives. They are in the same form.
- What is to be learned to achieve the objectives?
- What will the learner do to learn the knowledge and skills?
- What are your expectations for all parties involved?
- What evidence will the learner present to show that the objectives have been achieved?
### Implementing the Learning Contract

- When the contract has been negotiated, the learner begins fulfilling the contract.
- Learners basically work independently, but they may seek advice or resource assistance from the instructor or others.
- As circumstances change, the contract may be renegotiated.
- Eventually, the learner presents the agreed evidence, thus showing that he or she has learned everything necessary to achieve the stated objectives.

### Advantages of Learning Contracts

- Can be flexibly adapted to suit a wide variety of situations.
- Learning appears to be deeper and more permanent.
- Learners begin to learn the basic process that they can use in their own continued self-development.
- Allows adults to utilize their past experience in learning.
- As learners are pursuing their own goals, a higher level of energy is often created.

### Disadvantages of Learning Contracts

- Some people prefer a structured approach to learning and often feel insecure when left to their own devices.
- Social and organizational cultures do not always nurture or reward the abilities required for self-directed learning.
  - An instructor going against these norms will often meet resistance from upper management and learners.
- The instructor may face considerable demands on his or her time, knowledge, and energy as learners enthusiastically pursue their individual goals.
When Can You Use Contract Learning?

- One of the major characteristics of adult learning is that it is almost infinitely adaptable.
- There are really only two conditions required before contract learning can be implemented. These are
  - The instructor must have adequate skills and sufficient resources (especially time) available.
  - Learners must have appropriate levels of maturity and self-directed learning skills.

A Learning Contract I Have Used

<table>
<thead>
<tr>
<th>Learning Contract Form</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>What are you going to learn?</td>
<td></td>
</tr>
<tr>
<td>How are you going to learn?</td>
<td></td>
</tr>
<tr>
<td>Target date for completion</td>
<td></td>
</tr>
<tr>
<td>How are you going to keep track of your progress?</td>
<td></td>
</tr>
<tr>
<td>Learner:</td>
<td></td>
</tr>
<tr>
<td>Instructor:</td>
<td></td>
</tr>
<tr>
<td>Date agreed:</td>
<td></td>
</tr>
</tbody>
</table>

LEARNING ACTIVITY #1: SUPPLEMENT D

Simulation One

<table>
<thead>
<tr>
<th>Learner</th>
<th>John Doe</th>
<th>Domain</th>
<th>Foundation of Skill Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>What are you going to learn?</td>
<td>Management of people and processes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>How are you going to learn?</td>
<td>Self-directed learning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Target date for completion</td>
<td>June 30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>How are you going to keep track of your progress?</td>
<td>Checklists</td>
<td></td>
<td></td>
</tr>
<tr>
<td>How are you going to be evaluated?</td>
<td>Checklists</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learner:</td>
<td>John Doe</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instructor:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date agreed:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Advanced Methods -- II
If you want to do a learning contract as one of your methods, you may . . .

- You do not need a lesson plan . . .
- You need to develop a contract like the one on page 279 of your text.
  - Don’t do the same content as is in the example on that page!
Growth groups

- Growth groups come in many varieties.
- From their infancy in the late 1940s, they are now widely used in many forms and under many titles.
- They range from relatively structured, impersonal, and short-term learning exercises used to develop social skills through to the intense, freewheeling, and highly personal activities that occur in encounter, sensitivity, and T groups.
- Used a lot by churches as part of their ministries.

Are Growth Groups Effective?

- Growth groups, perhaps because of their highly personal nature, seem to produce rabid supporters and equally irrational nonbelievers.
- As with most instructional methods, the research indicates that sometimes growth groups work and sometimes they don’t.
- Research shows that a good deal of measurable (though not necessarily behavioral) change does occur after growth groups, but there is a substantial fade-out of these effects over time.

Characteristics of Growth Groups

- A face-to-face, relatively unstructured group format is used for the learning experience.
- The key group activity is interaction among members.
- Members have sufficient trust in each other to communicate about matters that would usually be classified as unacceptable or too risky.
- There is frequent feedback and analysis of the content and process of the interaction.
• There is an emphasis on dealing with problems that cannot be solved by old forms of behavior.
• There is an incentive to experiment with new behaviors in a supportive environment.

When Should You Use a Growth Group?
• When a skilled leader is available — it is a crucial factor in.
• When one of the following is a the learning objectives:
  – To inform learners of how they are perceived by others and how their behavior affects others.
  – To acquire insights into why people behave the way they do.
  – To foster increased tolerance and acceptance of the behavior of others.
  – To develop new ways of interacting with others and to receive feedback on and support for the attempt.
  – To develop understanding of how groups operate.

A Concern!
• Growth groups may place considerable stress on individuals, damaging their "psychological safety."
• Some participants grow through the stress to their own advantage, but other participants may suffer serious psychological damage.
• Hence, there is a major need to carefully select both the participants and the leader for such training activities.
Many organizations (and school systems) are turning to this high technology for instruction even when distance is not involved.

These learning activities based on technology are sometimes referred to as open learning or flexible learning.

Distance learning is more a delivery method than it is an instructional method.

- Of course each system you use to deliver distance learning has its own unique techniques that must be adhered to.

Some Applications of Distance Learning

- The availability of off-campus courses for which all material is transferred in both directions via CD.
- The preparation of staff prior to the installation of new equipment via video and computer packages.
- The use retail stores to update staff on new merchandise being introduced.

And
• Regular updating of the product knowledge of geographically dispersed salespersons, either by video or computer (Intranet) program.

• The production in some organizations of a regular news magazine video program, keeping all staff up-to-date on events in the organization and putting human faces on information sources instead of impersonal titles and signatures.

• Computer bulletin boards are being harnessed to provide organized, rather than haphazard, learning experiences.

• Here at ODU we primarily use TV as a delivery vehicle because we committed to that early on.

• Most distance learning is now delivered in business, education, and the government is over the Internet.

A Warning!

• The high-tech bandwagon is rolling irresistibly at present.

• But take care when jumping aboard!

• Investigate the present and the future needs of your organization, acquaint yourself with hardware and courseware and with likely future developments, and choose carefully before committing your organization to what will certainly turn out to be a significant expenditure.
Adventure Learning

Adventure learning varies in intensity from contrived, half-hour-long problem exercises up to week-long, full-intensity, wilderness survival treks.

It is usually characterized by being outdoors, requiring participants to engage in psychologically (and often physically) challenging activities, using a group context, and significant debriefing of activities.

It is often quite expensive.
Before engaging in adventure learning, consider the following factors:

- Do the learners really need to learn the things that adventure learning claims to be good at delivering? Could these needs be met by other cost-effective ways?
- Are those running the adventure fully professional in terms of their understanding of learning processes and goals and their knowledge of the outdoors, the activities, and safety?
- Are the adventure leaders more focused on the people than on the activities? Can they be trusted to identify the fine line between challenging learners to stretch their boundaries so that they grow and pushing learners too far so that they are damaged?
- Does the proposed adventure program include both time for and encouragement toward debriefing and reflection? Are the adventure leaders skilled at conducting such processes?
- Is there adequate provision for relating the learning to the requirements of the workplace?

Adventure Training -- Some Cautions!

- Relatively little scientific evaluation is available on the effectiveness of adventure learning in a business context. If asked, participants generally report significant learning. How much of this translates into long-term change in on-the-job behavior remains to be seen.
- Adventure learning raises serious issues of safety (both physical and psychological) and important ethical questions concerning how much an employer can legitimately require of an employee in a "beyond the call of duty" sense. The legalities of safety, insurance, and compensation are complex and must certainly be thoroughly considered.
**Adventure Training -- Some Cautions!**

- One of the foundation principles of learning is **transfer of learning**, and the prime aid to transfer is to make the training as much like the job as possible.
  - Adventure learning is one of the very few training strategies that consciously flies in the face of this conventional wisdom. Be aware that what adventure training sells runs counter to a **basic principle of learning**, and special steps are likely to be needed to encourage transfer.

---

**Job Aids**

- **A job aid:**
  - is a repository for information, processes, or perspectives;
  - is external to the individual;
  - supports work and activity;
  - directs, guides, and enlightens performance.
Difference Between Instruction and Job Aids

- The purpose of instruction is for the material to become part of the learner's long term memory, to be called upon later for instantaneous results.
  - Instruction involves presentation, practice, and feedback pertaining to the information to be mastered.

- Job aids are designed to direct more immediate performance, as the need to know arises.
  - Job aids provide instantaneous information for a particular task.

Examples of Job Aids

- Here are some:
  - You want to set the clock on your VCR because you're tired of the blinking 12:00, so you turn to the VCR manual.
  - You want to perform a task in Microsoft Word, but you lost the documentation. You turn to the on-line help provided from within the program.
  - You work as a serviceperson for a equipment repair company. You find an unusual piece of equipment you don't usually encounter. You flip open your "Magic Helper" and find the steps to trouble shoot the equipment.

Job aids help . . .

- To transfer skills from the classroom to the work-site.
  - Training, in general, usually happens apart from the realm of work, and transfer is by no means guaranteed.

- To reduce the length of training if the overall content, and more specifically, the objectives remain stable.
  - The use of job aids efficiently supplements training, leading to an educated workforce with instant access to the information they need.

- Using job aids at a job site brings education closer to the worksite, thus benefitting customers in the long run by adding individual flexibility.
Job aids would be inappropriate:

• When credibility would be damaged
• When speed or automaticity are essential to a task
• When unpredictable situations occur
• When masterful performance is needed
• When employees are unaccustomed to consulting references
• When employees are not motivated to try hard

Job Aids

• In training we provide job aids in lieu of costly training classes. The job aids are usually created for the following cases:
  – When encountering seldom required tasks
  – To be available to workers when they can’t remember exactly how to do that task they were previously trained on.
  – For tasks that are not complex enough to require training.

Example of Job Aid

• There is a good job aid on how to do a job aid at this web site:

  • http://xp123.com/jobaids/JobAidsJobAid.pdf
You can do a Job Aid for one of your Lesson Plans IF . . .

• It is an unusual task that most people can't do without the aid.
• It has information, process or perspective (needs a picture or drawing to depict it).
• And do not copy it from another job aid.
• While format can vary, you must include references from which you gathered your information.

Summary

• Today we covered:
  - More advanced instructional techniques
  - New instructional Methods:
    • Contract Learning
    • Growth Groups
    • Adventure Learning
    • Distance, Open, and Flexible Learning
    • Job Aids
Next Week -- April 16

• Read Ch 17
  – Work Experience-Based
  – Learning Projects
  – Action-Learning
  – Mentoring
  – Cooperative Education

• Portfolio Project due (on CD)

See ya’ next week . . .