DITA 2015
TEACHING AND CHECKING CONCEPTS
Angie Calton
Traditional Notions of Teaching
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TEACHING = HELPING LEARNING

- Through tutoring
- Through grading
- In lab
- In studio
- In discussion groups
- Knowledge
- Skills
- Attitudes

Office hours
Defensiveness

Assumptions

Language

Cultural Differences

Stereotypes

Emotions

Interpersonal Relationship

Sender

Feedback

Receiver
What is learning?

Learning is a *process* that leads to *change*, which occurs as a result of *experience* and increases the potential for improved performance and future learning.

KWL Strategy

<table>
<thead>
<tr>
<th>What I know...</th>
<th>What I want to find out...</th>
<th>What I learned...</th>
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Why is this so hard for them to understand?

Every year in my introductory psychology class I teach my students about classic learning theory, particularly the concepts of positive and negative reinforcement. I know that these can be tough concepts for students to grasp, so I spell out very clearly that reinforcement always refers to increasing a behavior and punishment always refers to decreasing a behavior. I also emphasize that, contrary to what they might assume, negative reinforcement does not mean punishment; it means removing something aversive to increase desired behavior. I also provide a number of concrete examples to illustrate what I mean. But it seems no matter how much I explain the concept, students continue to think of negative reinforcement as punishment. In fact, nearly 60% of the class got it wrong on a recent exam. Why is this so hard for students to understand?

How People Learn:
Four cognitive processes every teacher should know

Attention  Encoding  Storage  Retrieval
Instructional Events

- Gain Attention
- Inform learners of objectives
- Activate prior knowledge
- Present the point
- Provide learner guidance
- Elicit Performance
- Provide Feedback
- Assess Performance
- Enhance transfer
Instructional Events

- Gain Attention
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Gain Attention

• Quote
  – I never teach my pupils. I only attempt to provide the conditions in which they can learn.
    – Albert Einstein

• Audio Clip
• Short video clip
  – Street
  – Trash
• Reflective questions
• Jokes
• Riddles and puzzles
  – Angie had had had where Carrisa had had had had had had had had had Dr. Fitzsimmons approval

• Cartoon clips
  – scars
• Analogies
• Case studies
• Images
• Songs
• Class activities
Instructional Events

1. Gain Attention
2. **Inform learners of objectives**
3. Activate prior knowledge
4. Present the point
5. Provide learner guidance
6. Elicit Performance
7. Provide Feedback
8. Assess Performance
9. Enhance transfer
Instructional Events

- Gain Attention
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The importance of prior knowledge

Students must connect new knowledge to previous knowledge, beliefs and assumptions in order for learning to occur.
The Role of Prior Knowledge

Helps learning when...
- Activated
- Sufficient
- Appropriate
- Accurate

Hinders learning when...
- Inactive
- Insufficient
- Inappropriate
- Inaccurate
How to find out about students’ prior knowledge

- Talk to colleagues
- Do diagnostic test
- Have students assess their own prior knowledge
- Use brainstorming to reveal prior knowledge
- Assign a concept map activity
- Look for patterns of error in student work
- Process flowchart
- Storyboarding (metabolism)
- Timeline
Activating Accurate Prior Knowledge

• Use exercises to generate students prior knowledge
• Explicitly link new material to previous courses/lessons
• Use analogies and examples to connect to everyday knowledge
Instructional Events

- Gain Attention
- Inform learners of objectives
- Activate prior knowledge
- Present the point
- Provide learner guidance
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- Enhance transfer
Presenting the Concept

• Drawings
• Charts
• Tables
• Diagrams
• Graphs
• Stories
• Examples
• Timelines
• Models
• Processes
• Real World
• Demonstrations
Instructional Events

- Gain Attention
- Inform learners of objectives
- Activate prior knowledge
- Present the point
- Provide learner guidance
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- Enhance transfer
Check understanding

- Do NOT ask, “Understand?”
- Ask learners to repeat instructions
- Ask learners to explain meaning in their own words
- Ask learners to provide an example
- Ask learners to think of an exception
- Ask open class questions
  - Because the weight of the ball? Or because of the inertia of the ball?
  - I **bombed** the pop quiz.
  - I **aced** the final.
Instructional Events

- Gain Attention
- Inform learners of objectives
- Activate prior knowledge
- Present the point
- Provide learner guidance
- Elicit Performance
- Provide Feedback
- Assess Performance
- Enhance transfer
Practicum Session

• Discuss what you’ve learned so far
• Do structured planning
• Present
• Reflect and get feedback
• Wrap Up
1. Concepts: Pre-Planning

As part of the planning process, it is important to think about the learner(s) and their needs. Make notes on this worksheet. Then discuss your thoughts with members in your group. Invite others to give their opinions or contribute their ideas.

Teaching Point
Briefly describe the concept, skill or attitude you want your students to learn.

Learners
To the best of your ability, describe your learner(s). (Interests? Beliefs? Abilities? Attitudes? Biases? Limitations?)

Assumptions
What assumptions can you make about your learners’ prior knowledge and how it might relate to your teaching point?

Anticipated Problems
What difficulties do you think learners might have with your teaching point?

Possible Solutions
List at least two possible ways you could address the problems you've anticipated above.

Concept Checking
How can you check learners’ understanding?
2. Concepts: Planning

Use this table to plan how you will present and check understanding of a key concept. Do not focus on the shaded parts.

<table>
<thead>
<tr>
<th>Instructional Event</th>
<th>Activity</th>
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</thead>
<tbody>
<tr>
<td>Gain Attention (Reception)</td>
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<tr>
<td>Inform Learners of the Objective (Expectancy)</td>
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<tr>
<td>Stimulate Recall of Prior Learning (Retrieval)</td>
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<tr>
<td>Present the Teaching Point (Selective Perception)</td>
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<td>Provide Learning Guidance (Semantic Encoding)</td>
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<tr>
<td>Elicit Performance (Responding)</td>
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<tr>
<td>Provide Feedback (Reinforcement)</td>
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<tr>
<td>Assessing Performance (Retrieval)</td>
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<tr>
<td>Enhance Retention and Transfer (Generalization)</td>
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</tbody>
</table>
3. Concepts: Reflection

Think about everything we’ve discussed so far: language, presentation techniques, learners, strategies for teaching and checking concepts, etc. Use this chart to evaluate your performance and that of your partners. How well did you or your partners present concepts and check understanding? Share your ideas as a group, but be sure to **let the presenter speak first**.

<table>
<thead>
<tr>
<th></th>
<th>Me</th>
<th>Partner 1</th>
<th>Partner 2</th>
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</thead>
<tbody>
<tr>
<td><strong>Strengths</strong></td>
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<td><strong>Things to improve</strong></td>
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<tr>
<td>If you were to explain this concept again, what would/should you do differently?</td>
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<td><strong>My response to my partners’ comments</strong></td>
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Directions: Before we begin the presentation today, think about what you already **know** about teaching concepts, skills or attitudes in your field. Write the information in the **K** column. Then think about what you **would like to find out** from your fellow participants or from the presentation. Write your questions in the **W** column.

<table>
<thead>
<tr>
<th>K</th>
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