Psychology of Teaching

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JETS

Outline

• Characteristics of an Expert Teacher
• Rote Learning and Meaningful Learning
• Bloom’s Taxonomy of Learning Objectives
• Good Questioning Skills
• Teaching Study Skills

Teachers Make a Difference
(Hattie, 2003)

• Students: Intelligence, Motivation
• Home: Level of expectation and encouragement
• Schools: Finances, class size, buildings
• Peer effects: Attitude toward school
• Teachers: Know, do, and care about

Factors Contributing to Student Achievement

Expert Educators
(Morrow & Asbury, 2003)

• Use a variety of educational strategies
• Have high expectations for learners
• Provide instruction to meet individual learners’ needs
• Provide feedback to learners
• Treat all learners with respect
• Seek professional development on their own
• Collaborate with other educators
**Expert Educators**

- Have a deep understanding of the course content
  - Understands the mistakes that learners make
- Model enthusiasm and genuine interest in the topic
- Care for learners
- Supervise the learning process and are available to answer questions
  - Students are engaged 97% of the time when working with the teacher but only 57% of the time when working by themselves (Frick, 1990)
    - **Engaged time**: Time spent involves in a specific learning task

**Process of Meaningful Learning**

- **Subsumption**: New, incoming ideas are subsumed under more general and inclusive anchoring ideas already in memory.
- **Derivative subsumption**: Learning of new examples or cases that are illustrative of an established concept or previously learned proposition.
- **Correlative subsumption**: Elaboration, extension, or modification of the previously learned concept or proposition by the subsumption of the incoming idea.

**Effective Learning**

- There are two conditions for effective learning:
  - **Retain**: Remember what is learned in the future
  - **Transfer**: Use what is learned to guide thinking and behavior in a new situation
- The goal of teaching is to achieve both retention and transfer

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**Expert Educators**

- Evaluate teaching performance after each class and make plan for improvement.
  - What did I do well in this lesson?
  - How can I improve my teaching the next time to improve learning?
    - Do NOT critique something that is beyond your direct control.
  - What did the learners not understand?
    - Do I need to re-teach this in the next lesson?
    - How can I more effectively teach this next time?
Meaningful vs. Rote Learning

- Rote learning (memorization) only achieves retention of new information
- Meaningful learning achieves both retention and transfer, and even achieves retention better than rote learning.
- Therefore, teachers should strive for meaningful learning

Meaningful Learning

- Three conditions for Meaningful Learning to occur:
  1. Students must approach the learning task with the purpose of engaging in meaningful learning
     - Application: Teach students how to engage in meaningful learning and the benefits of meaningful learning
  2. Students must already have background knowledge that relates to the new material
     - Application: Ensure that students have foundational knowledge for a new topic

Teaching for Meaningful vs. Rote Learning

Rote Learning

- Verbatim memorization of new info
- Present definitions, formulas, and new info without explaining how it applies to students' experiences
- Random presentation of new info into memory with no effort to integrate new info with prior knowledge

Meaningful Learning

- Concept is fully understood by student
- Relate information to everyday experiences
- Deliberate effort to link new knowledge with prior knowledge

Meaningful Learning

- Three conditions for Meaningful Learning to occur:
  3. Educators must make lessons meaningful
     - Application: Lesson must be carefully prepared and presented in a way that is:
       - Clear
       - Meaningfully related to students' experienced and prior knowledge
       - Well Organized
Summary: Meaningful vs. Rote

- Very few things need to be learned by rote (Woolfolk, 2007)
- Point of Meaningful Learning: Make materials meaningful to the learner
- To achieve Meaningful Learning: Organize instruction to make meaningful connections to what learners already know

Teaching for Meaningful Learning

- Use analogies (similarities with ordinary concepts)
- Tell stories to demonstrate concepts
- Ask students for their relevant experiences
- Ask students questions beyond what you have directly taught to test their understanding
- Make students explain their reasons for their answers: Why?
- Answer questions with questions

### Bloom’s Taxonomy

<table>
<thead>
<tr>
<th>Category</th>
<th>Definition</th>
<th>Keywords</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understand</td>
<td>Understand the meaning of a concept</td>
<td>Comprehend. Explain. Summarize. Translate.</td>
</tr>
</tbody>
</table>
Bloom’s Taxonomy

1. What is the definition of rote memorization?
2. What are the advantages and disadvantages of teaching for meaningful learning?
3. How can you use meaningful learning in your classroom?
4. Create your own lesson that focuses on meaningful learning.
5. What are the similarities between meaningful learning and constructivism?
6. Why should students engage in meaningful learning?

Creating
Evaluating
Analysing
Applying
Understanding
Remembering

Questioning

• “Effective questioning techniques may be among the most powerful tools that educators employ” (Woolfolk, 2007, p. 493)
• Purpose of Questions
  – Helps learners rehearse information to put in long-term memory
  – Help the educator to assess learners’ understanding
  – Helps learners identify gaps in knowledge to spark curiosity
  – Serve as a cue to remind learners of knowledge already learned

Types of Questions

• Rhetorical question requires no meaningful responses from students
• Yes/no question
• Short-answer question where the answer was previously provided in class
• Thought-provoking question that requires students to think beyond information presented in class

Asking Good Questions

• Use sufficient wait-time after asking the question
  – Students give longer and more thoughtful answers when teachers wait at least 5 seconds before calling on a student to respond
• Ask guiding questions if students have difficulty responding
• Provide meaningful feedback after the response
• Do not criticize a student for an incorrect answer
Teaching Study Skills

• “It is quality rather than quantity that matters.” Seneca
• **Study Skills:** Approaches to studying that can improve learning
• Only few students develop good study skills without direct instruction on study skills
• Study skills can be taught to improve academic performance

Three Types of Study Skills

• **General study skills** that are applied to all classes
• **Specific study skills** that are unique for each subject
• **Self-regulation skills** where students learn how to plan their study times

Types of General Study Strategies

• Preparation for class/studying
• Active listening in class
• Note-taking skills
• Reviewing notes after class
• Reading textbooks
• Preparing for examinations
• Taking examinations
• Time management skills

Preparation for Class/Studying: PREP

• **Prepare** materials
  – Notebook, pencil
• **Review** what is known
  – Review materials from the previous class
• **Establish** a positive mindset
  – Encourage yourself about the value of learning
• **Pinpoint** goals
  – Note what you want to learn in the class
Active Listening:
SLANT

• Sit up
• Lean forward
• Act like you are interested
• Nod
• Track the teacher

Note-Taking Skills:
Cornell Notes

• Divide paper into three sections
• Take notes in two columns during class
• Review notes as soon as class is finished
  — Clarify unclear notes
• Write a summary at the bottom section.
• Focus review on the key topics at the left and the summary at the bottom

Reviewing Notes:
RCRC

• Read the material twice
• Cover the material with your hand
• Recite by summarizing what has been read without looking at the notes
• Check whether the summary is accurate by comparing it to the notes
Reading Textbooks: SQ3R

- **Survey**: Survey chapter (or notes) to find key points.
- **Question**: Turn the key points (or chapter headings) into questions.
- **Read**: Carefully read to find the answers to the questions.
- **Recite**: Recite the answers to the questions without looking.
- **Review**: Review your answer with the notes. If your answer is not correct, reread until the answer is clear.

Preparing for Examinations: Guess Test Questions

- Pay attention to key points in revision
- Review previous tests given by the instructor
- Create a list of possible questions
- Write answers to the possible questions
- Create flashcards with key points

Preparing for Exams: Test-Taking Tips

- Start studying weeks in advance. Review the day before.
- Get a good night sleep.
- Eat a big breakfast.
- Arrive early to the examination hall.

Taking an Examination: SPLASH

- **Skim** the test
- **Plan** a strategy
- **Leave** out difficult items
- **Attack** questions you know immediately
- **Systematically** guess after canceling other options
- **House cleaning** by leaving time at the end of the exam to review answers and clean the appearance of your answer sheet
Tips for Time Management

• Make a To Do list
• Set Deadlines
• Use waiting time productively
• Give small rewards for successes
• Make a realistic timetable

Steps in Teaching a Study Strategy

1. Describe the strategy to the pupils
   ▪ Explain the strategy itself and the benefits of the strategy
2. Model the strategy
   ▪ Use Think Aloud
3. Students memorize the strategy
4. Give assistance and feedback when students are using the strategy
   ▪ Scaffold by gradually reducing the amount of assistance that the teacher provides
5. Provide independent practice for students to apply the strategy.
   ▪ Continually provide feedback

Other Resources

• Strategies for teaching students study skills:
  – http://cehs.unl.edu/csi/study.shtml
• General study tips:
  – http://www.ucc.vt.edu/academic_support_students/study_skills_information/
• Ultimate Guide to Becoming a Better Student
  – http://i.allschoolguide.com/article/ultimate-guide-becoming-better-student