

Adult Learning Techniques: What Are They and How Can You Use Them?

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Adult Learners

- Have pre-existing knowledge and experience
- Need to know why this knowledge is useful
- Are task-oriented
- Need to take responsibility for own learning

Goal of teaching: Transfer of learning

Master what they have learned so that they can
adapt it to new situations

How can we achieve it?

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1. Be aware of aptitudes, preconceptions, and existing knowledge

Learning Styles

Definitions of Success

Existing Knowledge

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Learning Styles: Visual, auditory, kinesthetic (experience, moving, doing)

Definitions of Success: for example, memorization vs understanding. For students coming from different backgrounds, conceptual recall might have been sufficient in the past and this might keep them from performing their best when the success measure for the class deviates from what they know.

Dissonance: Learner's existing knowledge is challenged as being incorrect or incomplete by the new information
-Important to know what students know so the lecture level can be appropriate
-Important for the students to know what they don't know so they can make improvements as needed

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2. Define clear goals and strive to build the pillars of competence

**Factual
Knowledge**

**Effective
Organization**

Understanding

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Students will adjust their type of learning based on what is the most useful to them during tests:

- If the tests are mostly on conceptual knowledge, they will favor **“surface” learning**
- If tests require more analysis and complex thinking, they will strive for **“deep” learning**

Decide what your goal is for the students, and design your assessments accordingly, and give them feedback!

- Explain how you came up with the answer so students can see the thought process and gain deeper understanding of how all the concepts taught fit with each other to find the solution

When teaching, teachers should give students a basic structure of how the concepts relate to each other so they can organize them effectively for more easy retrieval.

This structure is called **“Scaffolding”**

Having a solid conceptual base is crucial for learning, but how they relate to each other (effective organization) and how they fit into the situation and their effect (understanding) is just as important

The students conceptual knowledge is of no use if they do not know how to apply it.

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3. Utilize active learning

Metacognition

Active learning: Metacognition

– Sense-making, self-assessment, reflection on what needs to be improved

Should involve both the **teacher** and the **student!**

“Are my students understanding the concepts presented in class?”

“What do I understand and what do I need to work on?”

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Our goal should be to get students to know what they know, what they don't know, if their knowledge applies to a new situation/technology, and what questions they need to ask.

To achieve this and help them gain mastery of the material, we need to teach them how to analyze their own thought process to identify where a mistake or misconception kept them from reaching the solution, and how to learn from this for next time.

For teachers, the metacognitive process should manifest itself as an introspection on how well the teaching strategy is working towards achieving the class goal. The teacher should design assignments so that he/she can get information to help adjust the lectures to improve understanding

Implications for teaching

- Have clear learning outcomes
- Formative assessment
 - Diagnostic teaching
 - Focus on understanding, not memorization
 - Provide constructive feedback to allow for timely adjustments
- “Community-centered” approach
 - Encourage questions/Allow for mistakes
 - Foment camaraderie and collaboration

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Have clear learning outcomes: **Use verbs** when describing what you expect as your learning outcomes, not a list of concepts - analyze, design, compare, identify, evaluate, etc. When describing the goals, use “select best detector for a given scenario”, instead of telling them that they need to know “ion chambers, scintillators, Geiger counters, ...” As we mentioned, adult learners are task oriented, they need to know why the knowledge is useful and they need to take responsibility of their learning so giving them a clear goal fulfills all of those points

Diagnostic teaching uses tools and strategies that help the metacognitive process for both teachers and students. It uses assessments to figure out where students are in their understanding of the material and what areas are weak and need further work. This in turn tells the teacher what approaches are working for the students in the class when the material is presented. Teaching and assessments should go hand in hand to gauge both teacher and student performance throughout the course.

Contents & Themes:

1. Make group problem solving tasks that are fun and accepting of risk taking.
Have at least one social event to help teams to form.
Laugh at your own mistakes, and make it easy for students to speak up.
Encourage them to teach each other: peer-to-peer teaching is highly effective.
2. Spend some time with individual students and smaller groups, at their level.
Do some homeworks with them, as one of them, to see what the roadblocks really are.
Some students need some things done differently, so make that happen.
3. Make exams deep and varied with high quality, time consuming grading.
Students always appreciate more detail and care in grading, helps them up-their-game too.
Make projects that directly train them for something practical as well as teach content.
4. Make lectures a detailed story with frequent references to key concepts, mixed with fun extras.
It is 100% the teacher's job to make it an interesting lecture.
Optimize total motivation = teacher motivation * student motivation.

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These concepts can be embedded in a class, little by little, without having to change the whole structure. Here are examples of how these concepts were present throughout Dr. Kissick's courses.

Thank you for your time!



References

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