

Ed psych chapter 10



Learning Sciences= the study of learning (sociology, psychology, education, computer sciences, etc.)

5 Assumptions of the Learning Sciences

- 1) experts have deep conceptual knowledge

- 2) learning comes from learner

- 3) schools must create effective learning environment

- 4) prior knowledge is key

- 5) reflection is key to developing deep conceptual knowledge

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Now Embodied Cognition= the theory that you need to interact with your

environment to develop cognitive processes

Most constructivist views of learning agree on 2 central ideas

- 1) Learners are active in constructing their own knowledge

- 2) Social interactions are important in this knowledge construction process.

Constructivism= view that emphasizes the active role of the learner in building understanding and making sense of information. First

Wave/Cognitive Constructivism (Piaget)= a focus on the individual and psychological sources of knowing, as in Piaget's theory.

Less concerned with "correct" representations and more interested in meaning as it is constructed by the individual.

Emphasis on Central Idea 1 (individual meaning of knowledge)

The outside world is a source of input, but once the information is received and enters the working memory, everything important is assumed to be happening in the head.

Radical Constructivism= knowledge is assumed to be the individual's construction; it cannot be judged right or wrong.

Extreme end of individual constructivism.

No reality or truth in the world, only the individual's perceptions and beliefs.

Problem With Radical Constructivism Problem: all knowledge and beliefs are equal because they are all valid individual perceptions.

Bigotry is equal to justice in this view.

Not good!

Second Wave/Social Constructivism (Vygotsky)= focus on what is happening externally, learning from experience with peers

By participating in a broad range of activities with others, learners appropriate the outcomes produced by working together.

Vygotsky's Mixture Vygotsky is viewed by some as a social constructivist because he focused on learning from others. Others, however, view him as a cognitive constructivist because he focused mainly on the development within the individual.

Vygotsky was actually a mixture of the two!

- His ZPD is where " culture and cognition create each other"
- Individually constructed and socially mediated.

Situated Learning= the idea that skills and knowledge are tied to the situation in which they were learned and that they are difficult to apply in

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new settings. Psychologists who emphasize social construction of knowledge tend to believe that knowledge is _____ bound to the time, place, and culture in which it is learned. Inquiry Learning= approach in which the teacher presents a puzzling situation and students solve the problem by gathering data and testing their conclusions.

Students:

- 1) formulate hypotheses to explain the event or solve the problem
- 2) collect data to test the hypotheses
- 3) draw conclusions
- 4) reflect on the original problem and the thinking processes needed to solve it.

Problem-Based Learning= methods that provide students with realistic problems that don't necessarily have "right" answers.

Goal is to help students develop knowledge that is useful and flexible, not inert.

In true problem-based learning the problem is real and the students' actions matter.

- Ex: having students compare Deepwater oil spill to other oil spills in the past and how they should deal with it.

Collaboration= a philosophy about how to relate to others
Cooperation= a way of working with others to attain a shared goal

Group work is merely putting students into groups to work

Doesn't necessarily mean that they are cooperating.

Cooperative Learning= situations in which elaboration, interpretation, explanation, and argumentation are integral to the activity of the group and where learning is supported by other individuals.

All students in the group must participate for it to be considered cooperative learning.

What can go wrong in Groups • Students who work in groups may arrive at the wrong conclusions but be more confident in them because they worked together.

- Misconceptions may be reinforced.
- Speed and finishing first take precedence over thoughtfulness and learning
- Socializing may take precedence over learning
- Student may shift dependency from teacher to the group " expert", learning is still passive

Cognitive Apprenticeship= a relationship in which a less experienced learner acquires knowledge and skills under the guidance of an expert. 6 Features of Cognitive Apprenticeship • Students observe an expert model the performance

- Students get external support through coaching or tutoring
- Students receive conceptual scaffolding which is gradually faded
- Students continually put what they are learning into words
- Students reflect on their progress, comparing to the expert

- Students are required to explore new ways to use what they learn, ways they have not practiced before. Reciprocal Teaching= designed to help students understand and think deeply about what they read.

Teacher shows students how an effective reader reads by modeling it for them. The students gradually assume the role of the teacher as they practice effective strategies.

3 Basic Guidelines for Reciprocal Teaching

- 1) Shift gradually: shift from teacher to student responsibility must be gradual

- 2) Match demands to abilities: difficulty must match abilities of each student and change as the abilities develop

- 3) Diagnose Thinking: teachers should carefully observe the teaching of each student for clues about how the student is thinking and what kind of instruction he or she needs.

5 elements that define true cooperative learning

- 1) Positive interdependence- group members believe that they can only attain their goals if everyone in the group attain their goals as well.

- 2) Promotive interaction- group members promote and facilitate each other's efforts

- 3) Individual accountability- students are held accountable individually to demonstrate learning

- 4) Collaborative social skills- necessary for effective group functioning

5) Group processing- group monitors itself to make sure that they are working effectively and to learn about the dynamics of the group.

Giving and Receiving Explanations The more a student provides elaborated, thoughtful explanations to members of his/her group, the more that student learns

Asking good questions and receiving good explanations are critical

The level of explanation and help students received was significantly relate to learning.

More explanation; more learning.

Structured Controversies= students work in paring within their four-person cooperative groups to research a particular controversy.

Good design for Cooperation

The pairs present their conclusions to each other, discuss the issue, the group develops a final report and summarizes the best arguments for each position and reaches a consensus.

Constructive controversy can lead to greater learning, open mindedness, seeing the perspectives of others, creativity, motivation, engagement, and self-esteem.

Jigsaw In jigsaw, each group member is given a part of the material to be learned and become the groups " expert" on that subject.

Students depend on each other because they will be tested on the entire subject not just the one they are the expert on.

They become interdependent

Reciprocal Questioning Students work in pairs or triads to ask and answer questions about lesson material.

Teacher provides stems and the students develop questions, then take turns answering and asking questions

Promotes deeper thinking about the material

Service Learning= combines academic learning with personal and social development for secondary and college students.

A teaching and learning strategy that integrates meaningful community service with instruction and reflection to enrich the learning experience, teach civic responsibility, and strengthen communities.

THERE NEEDS TO BE REFLECTION ON THE SERVICE DONE FOR IT TO COUNT!!!

Dividing Students into Groups Size = depends on goal

4-6 = review / rehearse / practice

2-4 = discuss / problem solve / active

50/50 = male / female

Shy vs. dominate

Tolerate & kind

" outcasts" Student Roles in Groups
Encourager: encourages reluctant or shy students to participate

Praiser: shows appreciation of others contributions

Gate Keeper: equalizes participation, makes sure no one dominates

Coach: helps with academic content, explains concepts

Taskmaster, Recorder, Reflector, Quiet Captain (noise level) Materials
Monitor

Why Assign Roles? To monitor participation and conflict and rotate leadership

To monitor engagement and ensure low-status students have resources to offer (i. e. Jigsaw)

Social skills = listening, encouragement, respect

Practice, review, mastery of basic skills

Students are more likely to learn if they get & give higher-level help

When are roles not a good idea? Not good for unstructured tasks:
conceptual, problem solving thinking and reasoning

May interfere with the process.