Constructivism

Individuals are active agents in constructing their own knowledge during the course of interaction with the environment. Thinking is an active process whereby people organize their perceptions of the world.

Goals of Constructivist Teaching:

- **Encourage knowledge formation**
- **Encourage metacognitive processes for judging, organizing, and acquiring information**

Example of Constructivist Teaching:

Robin Williams character in Dead Poet's Society is a prime example of constructivist teaching. He encourages:

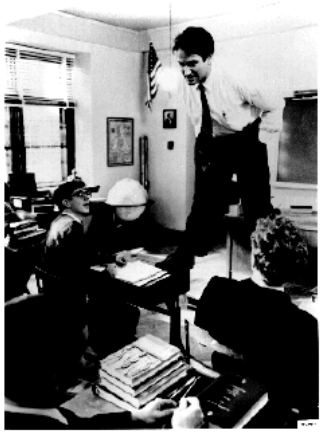
Personal interest

Background knowledge

Active learning

An emphasis on personal meaning

Critical thinking



Two types of Constructivism:

1. **Cognitive Constructivism**: Piaget; emphasis on the internal, individual construction of knowledge (endogenous).
2. **Social Constructivism**: Vygotsky; emphasis on social & cultural impact upon knowledge formation (dialectical).

Piaget's Cognitive Constructivism

Organization

- **Scheme**: Patterns of behavior or thinking that children and adults use in dealing with objects in the world. These become increasingly complex

Adaptation

- **Assimilation**: Interpreting new experiences in relation to existing schemes
- **Accommodation**: Modifying existing schemes to fit new situations

Equilibrium → *Disequilibrium* → *Groping* → *New Equilibrium*

Vygotsky's Social Constructivism

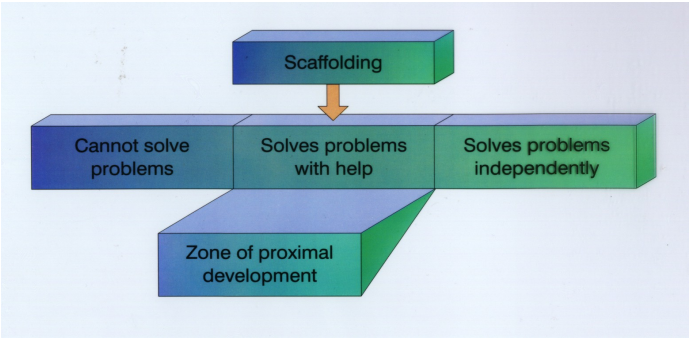
Zone of Proximal Development

"the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers."

Vygotsky, 1935

Scaffolding

Assistance that allows individuals to complete tasks they are not able to complete independently



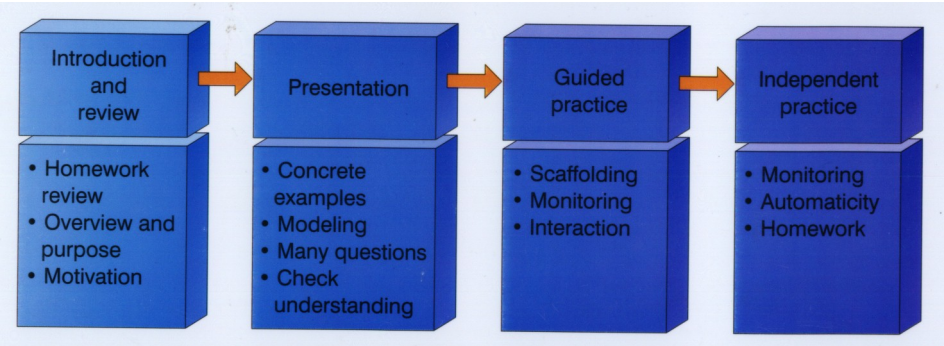
	Direct Instruction	Coop Learning	Discovery Learning
"Big Wigs"	Ausubel	Vygotsky	Piaget, Bruner
Type of Instruction	Teacher Directed	Peer Mediated, Apprenticeship	Guided
Teacher's Role	Expert, Organizer	Mentor, Collaborator	Facilitator
Central Concepts	Advanced organizers, schema activation, scaffolding	Scaffolding, cooperative groups, zone of prox. dev., self-regulation	Hands-on-learning, inductive learning, scaffolding
Role of Peers	Little role	Strong role	Mixed role
Effectiveness	Unfamiliar domains, low achievers	Mixed ability, modeling, groups	High interest and ability, high achievers
Emphasis	Knowledge acquisition, transmission of knowledge	Student-directed learning, social learning, transactional knowledge	Creativity, transactional knowledge

Direct Instruction

Particularly effective when teaching content/procedural skills that have:

1. **Specific set of identifiable operations or procedures**
2. **Can be illustrated with a large and varied number of examples**
3. **Can be developed through practice**

Phases of Direct Instruction



Tips for improving D.I.

- **Ask questions that promote active rather than passive thinking**
- **Bring in anything to increase attention/interest (e.g. props, guest speaker, visuals, multimedia)**
- **Probe often & observe wait time**
- **Exude energy and express personal interest**
- **Give many concrete examples**
- **Be creative; don't lecture from text!**

Discovery Learning

Advantages

- **Arouses curiosity**
- **Encourages independent problem solving**
- **Encourages the development of critical thinking skills**

Disadvantages

- **Requires special materials**
- **Extensive preparation**
- **Frustration**
- **Typically not as effective for low-ability students**

What defines Cooperative Learning?

- **Positive interdependence**
- **Individual accountability**
- **Structured activities**
- **Team goals/rewards**
- **A focus on higher-order thinking after presentation of basic information**

2 Specific types of Cooperative Learning

STAD (Student Teams Achievement Divisions)

- **Form heterogeneous groups (ability, gender, ethnicity, etc.)**
- **Compete for rewards based upon improvement of scores as a group**

Jigsaw

- **Have "experts" within each group who teach other group members**

What makes Cooperative Learning Effective?

- **Potential for accommodating individual differences**
- **Dual emphasis on academic and interpersonal skills**
- **Social construction of knowledge**
- **The ability to engage in higher-order thinking**