

Chapter 8

Inquiry and Problem Solving: Cognitive Constructivism in Action

Maxim
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Edition

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What Is Cognitive Constructivism?

- Active process
- Driven by the learner
- Presumes that development is a natural biological process that is the same for all
- Regards the purpose of social studies instruction as a function of supporting the child's needs and interests
- Role of the teacher is to provide an environment to explore problems

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What Is Problem-Centered Instruction?

- Dewey: Problems can be thought of as anything that creates doubt and uncertainty in learners
- Three elements:
 1. Designing captivating classroom displays (mini-museums)
 2. Discussing the displays
 3. Encouraging children's questions

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Mini-Museums

- Set aside exhibit areas in your classroom
- Design inspirational exhibits
- Allow children to explore, question, think, and talk about these exhibits
- Observational experiences do not guarantee the acquisition of problem-solving skills
- Couple the observations with carefully worded questions
- Encourage children's questions

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Inquiry Procedures

- John Dewey
 1. Students identify the problem or question to investigate
 2. Students generate hypotheses or tentative answers that can be verified
 3. Students collect data
 4. Students analyze the data and form generalizations to apply to problem
 5. Students share their results with an audience

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Locating Problems or Questions

- Student must initially encounter an attention-grabbing problem
- Problems must hold a high degree of mystery and appeal
- Problem must be something students are interested in
- Problems must be clear, understandable, and meaningful
- Problems must lie with the students' range of ability

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Generating Hypotheses

- Defined: educated guess, feeling, hunch, or suspicion
- Formulating hypotheses involves a certain amount of risk
- Teacher must attach importance to each individual's input
- Teacher should dignify all responses
- Purpose of hypotheses is to lead to data-gathering phase

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Gathering the Data

- At this phase students actively search for knowledge
- Types of data-gathering activities
 - Surveys
 - Descriptive research
 - Historical research

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Survey Research

- Survey: systematic collection of data that helps explain some characteristic of a particular group of people
 - 1st step: design precise questions based on clarification of the problem
 - 2nd step: students offer predictions about responses that become the categories for responses
- Sample strategy
- Organize data and summarize in graphic form
- Examine the data and draw conclusions

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Descriptive Research

- Direct observation: includes all tangible, hands-on experiences that involve students in touching, handling, or trying out objects or events
- Indirect observation: makes use of information sources other than direct experiences

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Historical Research

- Process of gathering and evaluating relevant information about the past

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Organizing and Analyzing Data

- Children should use maps, graphs, charts, or graphic organizers
- Teacher should model the process of organizing
- Teacher should build in time for students to reflect on the data

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Sharing Results

- Results should be shared with an authentic audience
- Use a variety of communication possibilities
 - Oral presentations
 - Graphic representations
 - Photographs
 - Audio or video tapes
 - Debates
 - Dramatic skits
 - Bulletin board displays

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Creative Problem Solving (CPS)

- Creativity: novel or original behavior that produces an appropriate and productive result
- Four cognitive traits
 - Fluency
 - Flexibility
 - Originality
 - Elaboration

Systematic versus intuitive responses

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Model of Creativity

- Domain knowledge and skills
- Creative thinking and working skills
- Intrinsic motivation
- Three-step method
 - Brainstorming
 - The Mess: saying all that can be said
 - Idea-Finding: brainstorming possible remedies

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Types of Thought-Provoking Questions

- Generate new ideas
- Adaptation
- Enlargement
- Condensation
- Substitution

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Benefits of CPS

1. Higher feelings of self-confidence, self-esteem, and compassion
2. Wider exploration of traditional content subjects and skills
3. Higher levels of creative invention in content and skills

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