# Teaching Higher-Order Thinking Skills It Starts With Good Questions

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## **Teaching Higher-Order Thinking Skills**

What is good teaching? And how can we achieve it?

Continuities and Changes in Education

What is the teaching norm today?

Using questioning strategies to develop critical thinking skills

Why is it important?

# Continuities and Changes in Education

What is good teaching?

- Greek philosopher Socrates taught his students to question their assumptions
- Medieval professors taught through lecture and memorization
- Industrial revolution continued the trend
- Bloom's Taxonomy (1956 & revised 2001) detailed questioning tiers
- No Child Left Behind Act (2001)
- Common Core State Standards (CCSS)
- What now?

What is Good Teaching?

Good teaching is the ability to effectively develop in students the skills they need and then inspire them to do the bulk of the *learning/thinking* about the subject matter.

## **Breaking It Down**

What thinking skills do students need? How do good teachers help students develop these skills?

How do good teachers inspire students to do the bulk of the learning or thinking on a subject?

### What Are the Levels of Thinking Skills? Bloom's Taxonomy Revised (2001)

- Remembering recalling known facts
- Understanding explaining ideas or concepts
- Applying use information in new situations
- Analyzing use connections among ideas
- Evaluating justifying a point of view or decision
- Creating producing something new or original

What thinking skills do students need? How do good teachers help students develop these skills?

## Higher-Order Thinking Skills and Bloom's Taxonomy



# What Are Higher-Order Thinking Skills?

### Higher-Order Thinking Skills in Children Plaget's Theory of Cognitive Development

Children begin to develop higher-order thinking skills during the concrete and operational developmental stages - typically occurs in upper elementary (ages 7 - 11) Kids can think logically and understand **cause and effect relationships** 

By fourth grade students should be able to:

- pose questions to clarify and interpret information and probe for causes and consequences
- · identify main ideas and select and clarify information from a range of sources
- collect, compare and categorize facts and opinions found in a widening range of sources

# Higher-Order Thinking Skills in Children

Plaget's Theory of Cognitive Development

In early adolescence, children begin to develop formal operational thinking, characterized by the ability to think abstractly and make logical deductions - middle grade/high school (ages 11 - 15)

By the end of sixth grade students should be able to:

- pose questions to clarify and interpret information and probe for causes and consequences
- identify and clarify relevant information and prioritize ideas
- analyze, condense, and combine relevant information from multiple sources

Psychologist Richard Bernstein (*The Bell Curve*) found that students who were given critical thinking lessons made substantial and statistically significant improvements in language comprehension, inventive thinking, and IQ as compared to a control group.

Other studies have found that students who receive instruction in higher-order thinking skills have better problem-solving abilities and are more likely to transfer their learning to novel situations.



### Teaching Higher-Order Thinking Through Questioning The Socratic Method

- 1. Critical Analysis (Analysis)
- 2. Problem-Solving (Application)
- 3. Evaluation of Evidence (Evaluation)
- 4. Comparative Analysis (Analysis)
- 5. Hypothetical Scenario (Synthesis)
- 6. Ethical Dilemma (Evaluation)
- 7. Interdisciplinary Connection (Synthesis)
- 8. Creative Problem-Solving (Synthesis)

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a Highter Order Thinking Skills

Understand (Comprehension)

learning or thinking on a subject?

How do good teachers inspire students to do the bulk of the

Meaningful Connections through Story, Discussions, and Projects

### "Story is what make us human ... Recent break-throughs in neuroscience reveal that our brain is hardwired to respond to story ... we're wired to turn to story to teach us the way of the world."

Lisa Cron, Wired for Story (2012)

## **Engaging Students in the Classroom**

- · Telling history through the stories of real people
- Authentic simulations: mock trials, moot courts, mock campaign cycles,
- Discussions, debates, presentations, skits
- · Hands-on activities: experiments, project-based learning, crafts, interdisciplinary lessons, exhibits, other visual deliverables (creating political cartoons, graphic short stories, newspaper articles, diaries)
- · Obtaining students interest and buy-in
- STUDENTS MUST BE ABLE TO SEE THE RELEVANCY TO THEM OF WHAT THEY ARE LEARNING



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