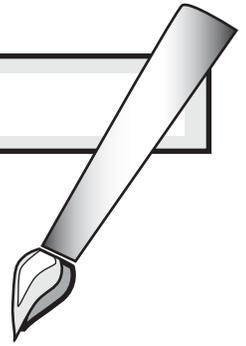


ATTAINING CONCEPTS

“The concept attainment model helps students learn concepts and study how they think. Simultaneously, it leads students to develop concepts and obtain conceptual control over their thinking strategies.”

Joyce and Calhoun, 1996



OVERVIEW

Concept attainment is a constructivist approach to teaching and learning drawn from the work of Jerome Bruner (1956). Students apply their prior understanding to determine the attributes of a concept by a process of comparing and contrasting. Through this structured inquiry approach, students learn to:

- distinguish between relevant and irrelevant information
- observe, classify, and hypothesize
- connect newly attained concepts with new information
- think inductively

The teacher’s principal responsibilities are to provide examples, record student data, and ask probing questions. The principal goals of the concept attainment model are to enhance long-term learning and enable students to develop a habit of analytic thinking through induction.

IMPLEMENTING THIS ACTIVITY

Stage One: Categorizing

1. Post two pieces of chart paper or divide a marker board into two sections.
2. Label the charts or marker board sections as: positive exemplars (have the attributes) and negative exemplars (lack the attributes).
3. Present and arrange several paired exemplars (pictures, words, sounds, symbols, etc.) according to positive and negative categories. The list is begun with a paired example that has a high attribute value.
4. Working singly or in groups, students complete the accompanying Discovery Guide through which they attempt to determine common attributes by:
 - Making comparisons within a single category
 - Looking for contrasts between categories
 - Focusing questions: What makes the items fit into that category? What prevents these items from being in the other category?

Stage Two: Building Concepts

1. Provide students with additional paired exemplars.
2. In the large group, students hypothesize about common attributes. Teacher charts ideas.
3. Present a new, additional example to test students’ hypothetical explanations. Ask students “Is this a positive or negative exemplar? Why?”
4. Tabulate class data and confirm the example.
5. Students attempt to name the category or teacher provides the category with a name or label.
6. Students give additional examples of that concept.

Stage Three: Attaining Concepts

1. Students working in pairs identify the defining attributes of the concept.
2. Student pairs prepare a final working description of the concept.
3. Students analyze and describe their thinking as they worked through the Concept Attainment processes.

ASSESSING THIS ACTIVITY

1. Score the completed Student Discovery Guide.
2. Create a related concept map.
3. Test for the ability to identify additional positive exemplars for the concept.
4. Write a summary description of the concept.

CONTENT AREA APPLICATIONS

- English/Language Arts: sonnet, metaphor, irony, symbol.
- Social Studies: democracy, civil rights, freedom of speech.
- Mathematics: triangle, statistics, chance events.
- Science: flowering plants, vertebrates, rock types, DNA.

MANAGING THIS ACTIVITY

1. Gather pictures, sounds, and words to use as exemplars.
2. Duplicate the Student Discovery Guide.
3. Obtain chart paper, markers, tape.

GLOSSARY

Attribute - major feature or characteristic of something; e.g., robin - red breast.

Attribute value - degree or strength to which the attribute is represented in the exemplar.

Category - collection of examples that share attributes missing in the other exemplar list.

Concept - idea, object, or event that can be given a name or label.

Data set - large list of exemplars.

Essential attribute - characteristic that is critical to understanding the concept under consideration.

Exemplars - subset of a collection of data presented as a pair.

Induction - process of reasoning that proceeds from the specific to the general.

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ATTAINING CONCEPTS: STUDENT DISCOVERY GUIDE



PHASE ONE: CATEGORIZING

1. What attributes make the items all fit into Category 1 (Positive Exemplars)?

2. What prevents these items from being in Category 2 (Negative Exemplars)?

3. What are some of the important but non-essential attributes of the object found in Category one?

PHASE TWO: BUILDING CONCEPTS

4. What is your hypothetical explanation for the inclusion of all items in Category one?



CONCEPT ATTAINMENT: STUDENT DISCOVERY GUIDE

PHASE TWO: BUILDING CONCEPTS (continued)

5. What is the name for the concept that you want to give to the items in Category one?

6. What are some additional examples of that concept that have not already been given?

PHASE THREE: ATTAINING CONCEPTS

7. What are the defining attributes of the concept?

8. What is your working definition of the concept?



ATTAINING CONCEPTS: STUDENT DISCOVERY GUIDE

SUMMARY REFLECTION

9. Describe your thought processes as you explored ideas through the concept attainment procedure.