

Schema theory of learning

Introduction

Schema theory was developed by R. C. Anderson, a respected educational psychologist . This learning theory views organized knowledge as an elaborate network of abstract mental structures which represent one's understanding of the world.

The term [schema](#) was first used by Piaget in 1926, so it was not an entirely new concept. Anderson, however, expanded the meaning.

Context

Understanding some principles from schema theory can help in your work. Here are some principles to apply:

- It is important to teach general knowledge and generic concepts. A large proportion of learner difficulties can be traced to insufficient general knowledge, especially in cross-cultural situations.
- Teachers must help learners build schemata and make connections between ideas. Discussion, songs, role play, illustrations, visual aids, and explanations of how a piece of knowledge applies are some of the techniques used to strengthen connections.
- Since prior knowledge is essential for the comprehension of new information, teachers either need to
 - help students build the prerequisite knowledge, or
 - remind them of what they already know before introducing new material.
- Schemata grow and change as new information is acquired.
- Learners feel internal conflict if they are trying to assimilate schemata which contradict their previous suppositions. Teachers need to understand and be sympathetic to this tension.
- Deep-seated schemata are hard to change. An individual will often prefer to live with inconsistencies rather than to change a deeply-held value or belief.

Discussion

Research by schema theorists indicates that abstract concepts are best understood after a foundation of concrete, relevant information has been established ([Schallert 1982:26](#)). The general knowledge provides a framework into which the newly-formed structure can be fitted.

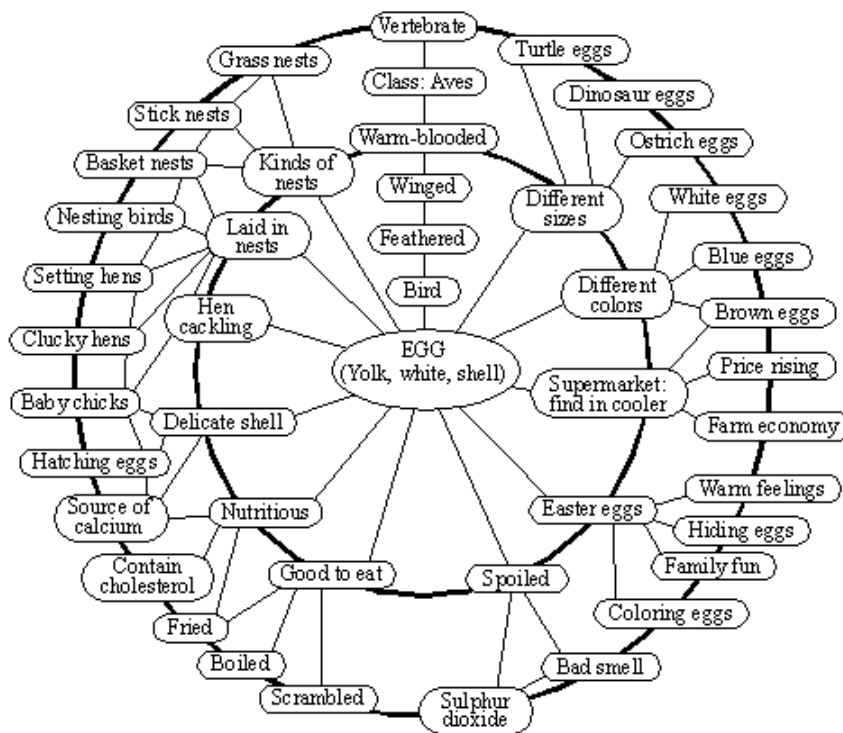
[Example](#)

Here are some characteristics of schemata according to [Anderson \(1977:418--419\)](#):

- Schemata are always organized meaningfully, can be added to, and, as an individual gains experience, develop to include more variables and more specificity.
- Each schema is embedded in other schemata and itself contains subschema.
- Schemata change moment by moment as information is received.
- They may also be reorganized when incoming data reveals a need to restructure the concept.
- The mental representations used during perception and comprehension, and which evolve as a result of these processes, combine to form a whole which is greater than the sum of its parts.

Diagram of a sample schema

Here is a diagram that describes how a person's schema of "egg" might include the components shown:



Diagram

(Davis 1991:21)

See also

- [Cognitive theories of learning](#)

See the following portions of online books for more information:

- *Cognition and Learning*, [Schema theory](#)

See the following online article for more information:

- [Schema theory, reading, shell books, and curriculum development](#)

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