Learning with Artifacts; Declarative Knowledge Cheat Sheet

by [deleted] via cheatography.com/2754/cs/5959/

Introduction

Knowledge often comes to us via transcribed content or artifacts, which is derived from other's knowledge. These are **facts, concepts, processes, procedures, and principles** (Clark & Chopeta, 2004). Thus, artifacts are used in the learning process for creating knowledge, while in turn, knowledge creates new artifacts. Theses artifacts (content) are in turn, used in the knowledge creation process to create two types of knowledge: declarative and procedural.

Declarative models refers to representations of objects and events and how these knowledge and events are related to other objects and events. They focus on the why rather than the how. It allows us to think and talk about the world. Declarative models include propositions and schemata.

Credit: http://www.nwlink.com/~donclark/learning/artifacts.html

Cognitive Schemata

Schemata are higher-level cognitive units that use propositional networks as their building blocks. These are often abstract or general nature that allow us to classify objects or events as belonging to a particular class and to reason about them.

Schemata are composed of **conceptional knowledge, plan-like knowledge, and causal knowledge**.

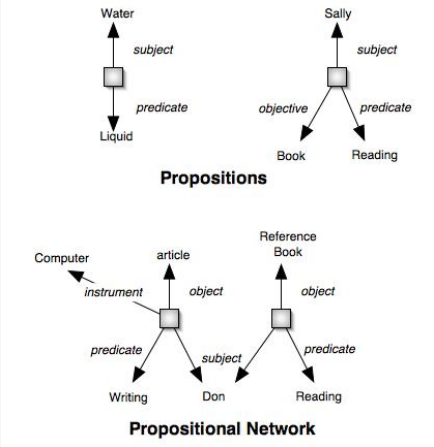
Conceptional Knowledge

Concepts are simple schemata that represent a class of objects, events, or other entities by their characteristic features. Concepts enable a person to identify or classify particular instances (concrete object or event) as belonging to a particular class. In a language, most words identify concepts and at least to a certain degree, they are arbitrary in that they can be categorized in many alternative ways.

For example, the concept "car" can be linked to "tires" and "engines." Thus, a instance can be classified as a car or not a car.

Experts possess more powerful concepts in their domain than novices that help them to solve problems. These concepts give them patterns for labeling various memory states, which allow them to classify problems according to their solution mode or deep structure. Where as novices typically classify problems according to their surface structure or superficial feature

Propositions and Propositional networks



Plan-Like Knowledge (Scripts)

These are simple schemata that describe how goals are related in time or space. They allow us to understand events and organize functions and actions. Plans are often referred to as scripts (or simple procedures) because they represent routine sequences of events.

Causal Knowledge

Causal knowledge are complex schemata that link principles and concepts with each other to form cause-effect relationships. They allow us to interpret events, give explanations, and make predictions.