

The Role of Cases in Learning

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Abstract

The notion of cases arises in various guises in a number of areas of research within Cognitive Science. Recent theories of situated cognition, for example, have argued that learning occurs most felicitously in circumstances that most closely resemble those of eventual use (Brown, Collins, & Duguid, 1989; Norman, 1993). Furthermore, research in analogical problem-solving has shown that transfer is improved when the similarity between training problems and target problems is increased (Gick & Holyoak, 1980). Both positions, therefore, support the argument that instruction based on cases is more likely to be usefully applied in practice than instruction based strictly on abstracted principles. Others have gone further to argue that learning through exposure to real cases is not only beneficial, but essential for attaining expertise. For example, Dreyfus has asserted (Dreyfus & Dreyfus 1986) that advanced stages of expertise can *only* be achieved through practice with a large number of cases. Moreover, advocates of Case-Based Reasoning (Kolodner, 1994) have argued that the process of acquiring expertise is really one of accumulating experience with a succession of real cases and properly indexing these experiences for later retrieval.

The purpose of this symposium will be to determine to what degree these views are compatible and to what degree they diverge. The presenters will endeavor to address the following questions from their own disciplinary perspectives: What is a case? How is it represented in

memory? How are appropriate cases retrieved for later use? Does expertise consist (strictly) in the acquisition of a collection of past solved problems? What role should the study of cases play in the acquisition of expertise? Should they precede or follow the study of abstracted principles?

References

- Brown, J.S., Collins, A., & Duguid, P. (1989). Situated cognition and the culture of learning. *Educational Researcher*, 18(1), 32-42.
- Dreyfus, H. & Dreyfus, S. (1986). *Mind over machine: The Power of Human Intuition and Expertise in the Era of the Computer*. Oxford, U.K.: Basil Blackwell.
- Gick, M. & Holyoak, K. (1980). Analogical problem solving. *Cognitive Psychology*, 12, 306-355.
- Kolodner, J.L. (1994). *Case-Based Reasoning*. San Mateo, CA: Morgan Kaufman Publishers.
- Norman, D. (Ed.) (1993). Cognition in the head and the world (Special Issue on Situated Action). *Cognitive Science*, 17(1).