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Cognitive Differences in Expert versus Novice Performance

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ABSTRACT:

In the history of cognitive psychology there has been shifting emphasis on domain specific and domain general knowledge on expert performance. Most of the studies demonstrate that for an expert performance in a domain sufficient knowledge of domain is necessary. Some research studies indicate that there is an interaction of domain-specific and domain-general knowledge for expert performance but exact nature of this interaction and relative contribution of each type of knowledge is not known. In comparing the performance of an expert against a novice a framework of representation of knowledge through associative network has been used. In the light of current research in cognitive psychology the question of variation of associative networks among the experts and novices is considered on the basis of following three aspects: (1) Quantity of knowledge in a domain, (2)organization of knowledge, and (3) accessibility of information. These three aspects of representation of knowledge are highly interrelated and interdependent. Experts in a domain not only have greater knowledge of the domain, but their knowledge is better organized around certain rules and principles. Similarly experts have better rather automatic access to the knowledge in their memories. The experts rely on automatic processing rather than controlled processing which help them to retrieve relevant information easily and rapidly, and frees up their attentional resources for higher level thinking. The experts and novices also differ in representation and solution of the problems. Problem representation of experts is much efficient and precise based upon principles of their domain which in turn help them to solve the problem effectively. The better representation of the problem further helps the experts to choose more efficient working forward strategies rather than slow working backward or mean and end strategies.