Consequences of prior experience on visual problem solving

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Abstract

People rarely face the same problem twice, but many problems are similar. What strategies do people discover when solving similar problems, and what is the impact of that experience on how they approach new ones? Here we investigated how people's strategies changed over time while solving sets of related visual reasoning problems. Participants (N=42) were given a sequence of "tangram" puzzles to solve, which could be reconstructed either exclusively with small pieces or with a special large piece to reconstruct the tangram in fewer moves. Later, participants attempted puzzles where a different large piece was helpful instead, so we could measure the impact of prior experience on how they approached puzzles favoring a different strategy. We found that participants reconstructed tangrams more quickly over time, and generally used the appropriate large piece for the problem at hand, reflecting their ability to flexibly adapt their strategies to new problems.

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