

## **Motor experience shapes abstract concepts**

Are there Conceptual Metaphors in people's minds that cannot be predicted by patterns in language or non-linguistic cultural artifacts? Motor-meaning congruity tasks showed that people automatically activate horizontal spatio-motor schemas when they instantiate abstract concepts with positive or negative valences ( e.g., intelligence, sadness, wealth). This was surprising given that these concepts are strongly associated with vertical schemas in linguistic metaphors (e.g., a high I.Q., feeling low, the upper class). The implicit use of horizontal image schemas for abstract ideas differed strikingly between right and left handed subjects. All subjects automatically activated upward schemas for positive ideas and downward schemas for negative ideas, but right-handers also activated rightward schemas for positive ideas and leftward schemas for negative ideas, whereas left-handers showed the opposite pattern. Results provide evidence for the perceptuo-motor origin of even our most abstract knowledge: people with different bodies ( i.e., right vs. left handers) who interact with their physical environments in systematically different ways form correspondingly different abstract concepts.