Simulation, Situated Conceptualization, and Prediction

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QUIZ

Why diverse situated representation represent a category?
Answer

Because a single general conceptualization would be too vague to support relevant inferences in specific situations.
Lawrence W. Barsalou

His work

the nature of human knowledge, and its roles in **perception**, **memory**, **language**, and **thought**

The current theme of his research

the human **conceptual system** grounded in the **brain’s** modality-specific systems
Two phases of reenactment process

(1) Storage of LTM of multimodal states that arise across the brain’s systems for perception, action, and introspection

(2) Partial reenactment of these multimodal states for later representational use
Main concepts

Simulators
- distributed multimodal system to represent the concept of sth.
  (eg., In case of bicycle, mesh, pedaling, and happiness)

Simulations
- represent specific instances of a category or groups of individual
- produce inferences and predictions
Situated representation of categories ➔ situated conceptualization

Multimodal simulations implement situated conceptualization of four basic types of information:

1. Perceptions of people and objects
2. Actions
3. Introspections
4. Setting i.e. where the event could occur
Once encountering a familiar situation
→ activation of entrenched situated conceptualization in memory
→ The perceiver anticipates what will happen next
Simulations and Situated Conceptualization as sources of prediction

Perception

LEARN ➔ E

PRESENT ➔ E
Perception

Perceiving the standard’s shape activated a simulation of its prototypical color across trials, which then distorted the standard’s perceived color.
Simulations and Situated Conceptualization as sources of prediction

Action simulation of grasping it!
Implicit memory
Simulation in the implicit memory increases perceptual fluency and speeds its processing

Working memory
Simulation in working memory underlies visual, auditory imagery
Simulations and Situated Conceptualization as sources of prediction

Conceptual Processing

Situated conceptualization also plays central roles when people attempt to predict information (e.g. watermelon)
“Mary hammered the nail into the wall” ➜ have implicit information of nail’s orientation
Simulations and Situated Conceptualization as sources of prediction

Language

Visual simulation

“Mary hammered the nail into the wall”
Simulations and Situated Conceptualization as sources of prediction

Language

Motor simulation

e.g.) Verbs for head, arm, and leg actions produce head, arm, and leg simulation
Social Cognition

Situated conceptualizations represent these patterns of association, and that pattern completion inference produces extensive predictions from these patterns during social interaction.
Thank you.