The Core of Learning – The Mirror Neuron System

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Mirror Neurons

L E A R N I N G

Conditioning — Cognitive Learning

I M I T A T I O N

Direct Matching — Cognition based imitation

Classical — Operant — Learning by Observation — Problem Solving Activity

„ B e h a v i o u r “ — „Action“

Mirror Neurons

- The origin: W.B. Carpenter
- The application: Bandura
- The sensation: G. Rizzolatti / V. Gallese

Mirror Neurons

- Next step: M. Umilta
- Extending the concept: Asterix and Obelix
- The breakthrough: Rizzolatti/Gallese/Iacoboni

Mirror Neurons

- Additional Findings: Keysers and Fogassi
- Importance of Motor Vocabulary and
- Language Competence
- Demonstration vs. Verbal Description

Mirror Neurons

- Cognition vs. Direct Matching
  - pros and cons

Level of Coaches and the Team

Level of Teachers Education and the Practical Work

Education of Referees and Delegates

Mirror Neurons

- Learning from a model
- Limbic System Controlling Function
  - Hippocampus vs. Amygdala
    - Motivation
    - Credibility
    - Neuromodulators
      - Noradrenalin, ACTH
      - Dopamin, Serotonin