

This approach differs from the other theories that try to fit the top-down and the bottom-up processes in a single model. The main distinctive feature of this approach is not so much on what amount of each type of processes is included, nor on the exact formula of their interaction, but on the processes that each of the direction of the information flow controls.

The proposed simulations with the cognitive architecture DUAL had disadvantages, as any other computational model. However, they demonstrate at least that potentially this approach could be valid. Their main advantage is that they test the proposed hypothesis for eventual contradictions and the success of the simulations is a reason for looking for further empirical and computational evidence or contradictions.

Logically, important questions arise from this point of view. Although the constructivist paradigm can explain many of the typical phenomena of human cognition, it is unclear how exactly the mechanisms for learning (i.e. adapting knowledge to the incoming information) and the mechanisms for constructing the world (i.e. understanding the incoming information in the light of memorized knowledge) may work together. Analogy making proposes theoretical solution – both the incoming and the memorized information change until they fit consistently. However, some relational knowledge still should be given to us in the beginning. Something should be innate. The different domains in cognitive science could propose different options for a predefined relational knowledge. For example, the embodied view of perceptions claims that knowledge could be presented in our bodies. The simulation theories of social cognition and emotions assume that it is possible for human to use their own neural system to resonate the mental states of the others and thus to understand them. Finally, some researchers argue that even in the domain of high-level reasoning and decision making probably we use innate, predefined heuristics.

It would still be highly speculatively to define the exact boundary between the innate and the acquired phenomena of the cognition.

However, future studies in this direction could potentially highlight important characteristics of human cognitive system.

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