

# Review of: "Operations of the Cognitive-Metacognitive System in Promoting Learning: a Brief Theoretical Analysis"

Jörg Zumbach<sup>1</sup>

<sup>1</sup> Universität Salzburg

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The manuscript "Operations of the Cognitive-Metacognitive System in Promoting Learning: a Brief Theoretical Analysis" presents an interesting approach and a sequence-model of how a "metacognitive system" works and interacts with cognitive information processing. I think that the author did a great job in putting different approaches and models of metacognition together and make a differentiation from cognitive processes and Critical Thinking. Nevertheless, I am not convinced that the suggests 6-step process model really hits the nail. Let me be more specific: Within the provided examples (I really appreciate them), the author provides an example of the meta level model: "The meta-level model of the task makes the problem solver aware that solving of the problem shall require the use of algebraic properties; namely, property of additive inverse...." When reading this sentence as an example what metacognition makes out of cognitive input I wonder if this is really "meta"-cognitive or cognitive. And this makes me come back to the crucial question whether metacognitions are "meta" or not. Especially the algebraic example made me here wonder, why the metacognitive model is still that task oriented and not rather generalized. This, in turn, brings me back to the issue, that I really miss backings and orientation on models and findings from cognitive science and neuroscience. I think that a model as suggested here should not only focus on task or information processing itself, but rather explain in which part of human information processing these occur and are regulated. Consequently, I would suggest to link the model more explicitly to executive functions and attention control (e.g., Chein & Fiez, 2010) and memory models (e.g., as suggested by Cowan). What really confuses me is also the integration of motivational and affective processes here. They are obviously interwoven with cognitive processes and outcomes. Nevertheless, the paper remains unclear about the linked structure between cognition and metacognition on one hand, and motivational and affective processes on the other hand. Finally, I think that the 6-step model is redundant on page 9 and 11.