

Energetics of the human mind : an effort to show the neural correlates of mental efforts

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Propositions accompanying the dissertation

Energetics of the human mind

An effort to show the neural correlates of mental effort

Tobias Otto

November 15th, 2013

1. The act of experiencing mental effort investment acutely and the act of rating it at a later point both rely on the same neural structure (this thesis).
2. It does not matter if variations in the experienced amount of invested mental effort are caused by changes in the task or changes in the state of the operator, as these changes are reflected in the same neural structure (this thesis).
3. One-dimensional visual analogue scales such as the Rating Scale Mental Effort measure the concept of mental effort in accordance with our knowledge about the related neural processes (this thesis).
4. Although it is tempting to assume that the “energy” invested to perform mental tasks literally and exclusively corresponds to a fuel such as glucose, this assumption constitutes an oversimplification (this thesis).
5. Instead of actual energy such as glucose, the limited resource underlying effortful regulation is rather the ability of the brain to form coherent functional networks, which is impaired after sustained performance (this thesis).
6. Work Psychology and Cognitive Neuroscience will profit substantially from exchanging theoretical and methodological expertise.
7. Occupational Neuroscience will play a central role in identifying and changing the interplay between people, their work, and their lives.
8. We are only beginning to understand how the way that we use our brains every day influences the way they function.
9. The next step in human evolution is the transition from brain owner to conscious brain user.
10. You have a limited amount of energy to do a chore, and when you invest part of that energy into being annoyed about having to do that chore, you have only a fraction of your energy left to actually do it. Thus, if I really have to do something, I make it something I like doing (my grandmother, Johanna Otto).