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Tackling complexity of nutritional behaviour as an example for a human ecological topic: application of instruments from systems sciences

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Human ecological topics are predominantly complex. They are characterized by a multitude of interlinked factors. This interrelatedness results in cause-effect chains, feedback loops, multicausalities, and side effects. Complex topics feature temporal and spatial dynamics, non-linearity, emergent properties and intransparency (Hummel and Hoffmann 2011). Nutritional behaviour is an example for such a topic. For capturing, depicting, and analysing nutritional behaviour as a complex phenomenon (Hummel 2017), elements of three instruments of the systems science approach were combined and tested concerning tackling complexity in the field of nutrition: Nutrition-ecological Modelling (NutriMod, Schneider and Hoffmann 2011), further developed to NutriMod+ST (Hummel and Hoffmann 2016); Sensitivity Model (Vester 2007); Cross-Impact Balance Analysis (Weimer-Jehle 2013). A cause-effect model was developed and used for several subsequent analyses, e.g. concerning consistent scenarios. The results created with these instruments increase the understanding of the complex phenomenon of nutritional behaviour. Additionally, promising starting points for modifying food consumption (the core factor of the model) were identified from a systems perspective (Hummel 2017). This work is a promising example for merging instruments from systems sciences and human ecological topics such as nutritional behaviour. It demonstrates the huge potentials towards solving complex scientific and societal problems.

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