

# Connecting two worlds

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# Summary

This dissertation aimed to gain a better understanding of how implicit attitudes and explicit cognitions relate to each other as well as how these different types of cognitions jointly predict health behaviors. To do so, we broadened the common approach of looking at implicit attitudes and explicit attitudes only in the prediction of (health) behaviors and added more explicit cognitions, which are known to be important determinants of behavior, into the analyses. The following research questions were addressed: (1) (How) do both types of cognitions jointly predict two different health behaviors? (2) What is the effect of dissonant implicit attitudes and explicit attitudes (IED) on the relationship between explicit attitude and intention/behavior? (3) Is mindfulness related to IED and can mindfulness buffer a possible negative effect of IED on intention/behavior? and (4) Do implicit attitudes, explicit attitudes, and behavior influence each other over time?

Regarding research question one, we found that implicit attitudes and explicit cognitions predicted two different health behaviors in accordance with the interactive pattern. More precisely, implicit attitudes moderated the relationship between self-efficacy and both behaviors. In both cases, the effect of self-efficacy on the respective behavior was strengthened when the implicit attitude pointed into the same direction (e.g. high self-efficacy to be physically active and a positive implicit attitude towards PA, high self-efficacy to reduce ones RMC and a negative implicit attitude towards RM). For the prediction of intention, support for the additive pattern (for RMC) as well as for the interactive pattern (for RMC and PA) was found, indicating that the two patterns do not exclude each other. Regarding the interactive pattern, the effect of the respective explicit cognitions on intention was again strengthened by those implicit attitudes that pointed into the same direction, e.g. the negative effect of perceived cons on PA intention was strengthened by negative implicit attitudes towards PA. For the explicit cognitions concerning social influence (social norms, social modeling), a different pattern was detected. That is, when social norms or modeling of a behavior were strong, the intention to perform the behavior was strongest when implicit attitudes regarding the behavior/object were in the same direction (for RMC) or opposed (for PA and RMC) (e.g. perceiving many important others as sufficiently physically active and holding a negative implicit attitude towards PA or perceiving strong expectations of important others to reduce one's RMC and holding a positive implicit attitude towards red meat). This suggests that there can be dissonance between explicit constructs (social norms and social modeling) and a person's implicit attitude and furthermore, that individuals are motivated to resolve this dissonance. One way to do so could be by neglecting one's implicit attitude and by behaving in accordance with the more obvious norms and behaviors of important others. In the present studies such a dissonance reduction resulted in positive outcomes when considering from a health perspective (e.g. a high intention to be active as well as a high intention to reduce ones RMC). It is unclear, however, how this effect would look like, in case social influence was negative (e.g. no expectation of others to be physically active combined with a positive implicit

attitude towards PA or low expectations to reduce RMC with a negative implicit attitude towards RM). Hence, more research is needed to assess under which specific circumstances dissonance between explicit cognitions and implicit attitudes can be beneficial or detrimental for the pursue of health behaviors. Although implicit attitudes were not found to have a direct influence on behavior, they did influence behavior indirectly. Based on this finding, it can be concluded that health interventions might profit from next to tackling explicit cognitions to also address implicit attitudes by steering them into the desirable direction. The latter approach could be implemented using evaluative conditioning.

Regarding the second research question, we did not find IED to moderate the relationship between the explicit attitude and intention and behavior. What we did find, however, was that IED was negatively associated with PA levels, even when the implicit attitude and the explicit attitude itself were not related to the behavior. The negative association between IED and PA indicates that IED can be detrimental for the pursue of health behaviors. This is presumably the consequence of an uncertainty about whether or not to perform the behavior, which in turn results from discrepant attitudes regarding the behavior. Hence, IED does not weaken the predictive power of explicit attitudes on intention and behavior but shows a direct association with behavior, which was negative in the current context. This suggests, that the congruence of attitudes should be taken into account when aiming at behavior change, even when implicit attitudes and explicit attitudes are not directly associated with the behavior.

In chapter 4, we addressed the third research question whether mindfulness is associated with IED and whether it can buffer a possible negative effect of IED on intention and behavior. Mindfulness subskills were neither related to IED nor did the mindfulness subskills moderate the relationship between IED and behavior. IED was, however, negatively associated with behavior and intention, in the sense that higher IED was associated with lower levels of RMC and a higher intention to reduce one's RMC. Again, it is likely that IED motivated people to dissolve the dissonance, which results from the different implicit and explicit attitudes towards the same behavior/object. The mindfulness subskill acceptance, however, was found to buffer, the aforementioned effect. That is, people who reported a high distinct ability to accept their inner feelings and processes as they are, did not indicate a higher intention to reduce their RMC (as an attempt to reduce dissonance) compared to people with a less distinct acceptance subskill. Hence, in addition to the known strategies to resolve dissonance, there seemingly exists an additional way to resolve dissonance and associated negative feelings, namely by the 'simple' acceptance of it. This finding appears especially valuable for research fields in which dissonant attitudes have been shown to be maladaptive, e.g. research regarding self-esteem. Future studies should investigate whether training the ability to accept can be used as an alternative to changing implicit attitudes, when dissonance is present.

Regarding the last research question whether implicit attitudes, explicit attitudes, and behavior influence each other over time, we did not find reciprocal relationships. Only the relationship between implicit attitude and perceived cons (regarding PA) was significant. The more positive the implicit attitude towards PA at baseline, the lower the perceived pros of

PA at T1. This could be explained by means of the APE (Gawronski & Bodenhausen, 2006). That is, the positive implicit evaluation of PA might not have been considered as valid, when forming one part of one's explicit attitude –perceived pros. This could be due to the fact that more perceived cons at baseline were also negatively related to perceived pros at T1. As perceived cons might be relevant propositions but are inconsistent with the implicit attitude, it is possible that the implicit attitude was considered as invalid when forming one part of one's explicit attitude i.e. perceived pros. In order to be able to draw more general conclusions about whether and how implicit attitudes, explicit attitudes, and behavior influence each other over time, we encourage future research in this avenue.