

# Environmentally harmful behaviors: Insights from social neuroscience

T. Brudermann<sup>1</sup>, K. Dobernig<sup>1</sup> & S. Stagl<sup>1</sup>

<sup>1</sup> *WU Vienna University of Economics and Business, Vienna, Austria*

Environmentally harmful behaviors often are attributed to habits and routines, convenience or lacking awareness for environmental problems (Jackson, 2005). Thus behavior change towards more environmental friendliness is supposed to be difficult and often impeded through situational barriers (von Borgstede & Biel, 2002). While these claims certainly are justified, not enough attention has been paid so far to the role of social influence in environmentally significant and harmful behaviors. Recent insights from neuroscience provide evidence for the claim that other-regarding behavior is deeply rooted in our brains. This presentation will discuss some of these insights and their implications for environmental psychology.

Social neuroscience is a new, interdisciplinary field devoted to understanding how biological systems implement social processes and behavior (Cacioppo, et al., 2007). Among other things it delivers vital insights on human decision making and behavior in social contexts – and many environmentally significant decisions are made in a social context. We consider the following results to be of particular interest:

Firstly, humans are equipped with fast and efficient mechanisms for imitating others: The human mirror neuron system is supposed to be one central basis for other-regarding and other-directed behavior (Keysers, 2009). According to Bastiaansen et al. (2009) this system is supposed to fulfill the following goals: (1) Processing actions of others and imitation, (2) sharing sensations in the somatosensory cortex and (3) affective sharing of emotions. Thus the mirror neuron system provides very basic functionality regarding alignment of emotions and actions.

Secondly, our neural basis also fosters the alignment of preferences and perceptions. Mason et al. (2009) provide neurological evidence for preference alignment; they identified neural circuits that differentiate objects

valued as a result of social influence from those valued for non-social reasons. On the other hand, even perceptions may be altered by social influence, as suggested by Berns et al. (2005).

Thirdly, social norms play a significant role in decision making. Studies conducted by Spitzer et al. (2007) indicate a neural network involved in social norm compliance that might constitute an important basis for human sociality. Different activations of this network reveal individual differences in the behavioral response to the punishment threat in experimental settings. Results suggest that forced norm compliance activates prefrontal brain regions involved in cognitive control, the evaluation of punishing stimuli and the inhibition of prepotent responses. If, however, human counterparts are acting unfair, the anterior insula comes into play, a brain region primarily involved in the processing of negative bodily sensations and aversive feelings. It activates depending on the perceived degree of unfairness and triggers the desire for revenge (Montague & Lohrenz, 2007; Sanfey, 2007). On the other hand, the cerebral reward system gets activated by mutual cooperation or pro-social acts (Rilling, et al., 2002). Moreover, wreaking revenge on defectors seems to increase activation in the reward system as well, even if linked to a monetary loss (De Quervain, et al., 2004; Gowdy, 2008): The pleasure of punishing defectors exceeds the pain of a monetary loss.

To sum up, neuroscience delivers support for the view that environmentally significant behaviors cannot be explained sufficiently if analyses are limited to the individual level and behaviors of “others” are left aside. In this respect, the additional perspective added by social neuroscience clearly has the potential to enrich environmental psychology.

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