REVIEW REPORT

Of the Dissertation Committee Member of the Dissertation Committee Iiro P. Jääskeläinen, PhD, Associate Professor

on dissertation Oksana Zinchenko on topic: «Neurobiological mechanisms of social punishment as cooperation's promoter», submitted for the purpose of obtaining Doctor of Philosophy in Psychology HSE (PhD HSE)

Dissertation Oksana Zinchenko on topic: «Neurobiological mechanisms of social punishment as cooperation's promoter» is a very high quality PhD thesis on a societally very relevant topic. It is very well written and progresses logically, and is sound both theoretically and empirically. It significantly advances our understanding of brain mechanisms underlying representations of social norms in the human brain and the brain mechanisms underlying third-party punishment of social norm violations.

Relevance of the dissertation topic. The dissertation is on a very interesting topic, answering the question of how social norms and their violations are represented in the human brain, and which brain regions are important for third-party punishments for social norm violations. Especially the question of the neural basis of third-party social-norm punishment is an important and under researched one that the dissertation eloquently addresses by combining meta-analysis of literature and brain stimulation to demonstrate the key role of temporoparietal junction. As humans are a social species, social norms, their violations, and punishment for the violations of norms by others directly affected and in bystander roles involves countless different arenas of society from everyday life, via upholding of values and practices in companies, onto arenas of political decision making and voter behaviors. The results of the dissertation provide important advances towards better understanding of the underlying mechanisms and are therefore highly relevant.
The novelty of the results and conclusions. The meta-analysis of literature on brain representations of social norms and social norm-violations helped clarify beyond individual studies which brain regions are most centrally involved in these two functions. As another novel result, it was noted that when inspected across studies, these two functions involve non-overlapping activations. Further, there have been relatively few previous studies on third-party punishment of social norm violations, which was addressed in another meta-analysis as a logical next step. Then, based on the results of the meta-analyses, novel empirical results were provided in a hypothesis-driven empirical study that demonstrated the role of TPJ in third-party social norm punishment. Overall, the dissertation progresses very systematically, provides novel results, and conclusions are drawn appropriately.

The validity of scientific statements and conclusions formulated in the thesis. The thesis is based on two meta-analysis studies have been published in well-recognized international peer-reviewed journals with the candidate as first author in both, and these are supplemented by another publication in a journal published by HSE reporting empirical results that directly test hypotheses built on the basis of the meta-analyses using brain stimulation. While the scientific validity of the first two studies including conclusions have been already scrutinized and approved by the external peer review process of the international journals, upon reading the description of what was done in the third study thus far published only locally (I do not know if there is a peer review process in place in the HSE journal) I have no doubts that those results could not pass the peer review process in international peer-reviewed journals of good quality.

Comments on the thesis. The thesis is succinct, progresses very systematically with logical steps, it is in general very well written with very few typos, addresses highly relevant questions, and produces a series of interesting novel results that significantly advance scientific knowledge.
Conclusion. Oksana Zinchenko dissertation work on the topic: «Neurobiological mechanisms of social punishment as cooperation’s promoter» meets the requirements for work for the degree of a candidate of science at HSE. I consider it possible to award the Zinchenko, Oksana, degree in psychology at HSE (PhD HSE).

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