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Metacontrol in the brain: investigating neural mechanisms of persistence and flexibility states during meditation and creative thinking using EEG and fMRI techniques

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CURRICULUM VITAE

Weitao Zhang was born in Xilinhot, Inner Mongolia, China, on June 23, 1992. From 2007 to 2010, he attended Xilinhot High School No. 6, earning his high school diploma. In 2010, he enrolled at Shanghai Polytechnic University to study Mechanical Engineering and Automation, obtaining his Bachelor's degree in 2014. From March 2013 to July 2015, he self-taught psychology in preparation for the Graduate School Entrance Examination. From September 2015 to July 2018, he pursued his Master's degree in Psychology at Capital Normal University in Beijing, China. During this period, he developed research interests and gained research experience in creativity and meditation, under the supervision of Prof. Jing Luo.

Weitao began his PhD project in the Cognitive Psychology Unit of the Faculty of Social Sciences at Leiden University in September 2018. He was supervised by Prof. Bernhard Hommel and Dr. Zsuzsika Sjoerds. From 2018 to 2024, he acquired various research skills for studying the brain, including EEG and fMRI, and became proficient in programming languages such as MATLAB, R, and Python. His PhD research focused on cognitive metacontrol, creativity, and meditation, contributing to the development of his own creativity and meditation habits. In 2020, he published his first popular science book on creativity and the brain. From October 2023 to June 2024, he served as a workgroup instructor, teaching bachelor students at Leiden University courses such as Applied Cognitive Psychology, Cognitive Neuroscience, and Academic Skills Tutorial.

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I always see my journey of doing a PhD in two aspects: (1) Learning new knowledge and (2) exploring a new environment. In this acknowledgement, I will firstly give special thanks to the people who contributed to the two aspects of my PhD journey, and then I will mention the names which bring some memories to me during this wonderful journey for me to reminisce when I am old.

In the face of new knowledge and environment, I need to be brave. Luckily, thanks to my big family, especially my mom, who have been giving me the unconditional love. With their help, I have come so far away from home to Leiden.

After I came to Leiden, firstly, regarding learning new knowledge, many thanks to Bernhard and Zsuzsi.

In 2018, when I was at a crossroad in life, Bernhard gave me the opportunity to come to Leiden to pursue research in my interests. The idea of metacontrol he proposed inspired me and led me to the most important 'Aha' moment of my life, after which I trained myself to switch between persistence and flexibility whenever I needed, and I feel very complete having the awareness of my metacontrol. I remember every conversation we had and how he inspired me every time. I have to say I am so lucky and so proud of being his student.

Most of the time in these 6 years, Zsuzsi has been the person who guides me and supports me in Leiden, and she is the reason why I feel safe and focused to finish my PhD, because I know she will support me and protect me as she has always been doing. More importantly, in the interaction with Zsuzsi, I truly gained a deep understanding of what science is, and cultivated my critical thinking, which has become the treasure of my life.

Regarding exploring a new environment, friends matter. Europe is an entirely new place to me, and I had a hard time because of language and culture, and I felt unsafe and fearful.

I had a lonely first year until Fabiola came, firmly choosing me as her desk mate. She is like my first friend in kindergarten, and I love her more than she knows. At the same time, Beth arrived too, making me feel comfortable and safe. We shared the longest time in the office with each other, even during the Corona time. God said let there be a bro and Brandon appeared. We had a mission together in which we conducted 85 fMRI experiments. As you know, it is 'Men on a mission'. Then, Martin came back to Leiden after many years. With Martin and Brandon, we can talk about everything, you know, everything.

Most importantly, you, who are reading this acknowledgment, are important too. As my best friend, I am sure you can understand why I cannot say something special to you in this acknowledgment of scientific thesis. Therefore, I have put your name in the list below, and I hope you can find it. The names on the list are not all friends; for some people, I only met them once, but each name is like a time machine, which can lead me to a piece of episodic memory and remind me of a good time.

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