

Dr. Yana Fandakova

Department of Developmental Cognitive Neuroscience
Institute of Psychology
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Academic Positions

- 10.2022 - present **University of Trier**
Professor
Institute of Psychology, Department of Developmental Cognitive Neuroscience
Principal Investigator, *Learning Brain Lab*
- 2016 – 2022 **Max Planck Institute for Human Development, Berlin**
Research Scientist
Principal Investigator, *Mechanisms and Sequential Progression of Plasticity*, Center for Lifespan Psychology
- 2014 – 2016 **University of California, Berkeley & Davis**
Postdoctoral Fellow
Helen Wills Neuroscience Institute, UC Berkeley
Center for Mind and Brain, UC Davis
- 2012 – 2013 **Max Planck Institute for Human Development, Berlin**
Postdoctoral Fellow
Center for Lifespan Psychology

Education

- 2012 **Humboldt-Universität zu Berlin**
Dr. rer. nat., *Summa cum Laude*
Dissertation title: *Age and Individual Differences in True and False Memory Across the Lifespan*
- 2008 **Humboldt-Universität zu Berlin**
Dipl.-Psych., Major: Cognitive Psychology and Neuroscience

Grants and Awards

- 2022 *UKRI Future Leaders Fellowship, Cardiff University (declined)*
Role: PI
Total award: £1,481,118
- 2019 – 2023 *How do students learn new concepts? Identifying factors that promote students' understanding of physical science concepts*
Jacobs Foundation
Role: PI
Total Award: CHF 195 889, MPIB subaward: CHF 83 252
- 2018 – 2021 *Plasticity of Task Switching in Childhood: Mechanisms and Sequential Progression*
German Research Foundation (DFG), DFG Priority Program SPP 1772 "Multitasking"
Role: PI
Total Award: EUR 275 720
- 2014 – 2016 *Relating changes in fronto-parietal networks to changes in control over memory: A longitudinal, cognitive neuroscience approach to memory development in childhood*
Research Fellowship, German Research Foundation (DFG)
Role: Postdoctoral Fellow
Total Award: EUR 87 000
- 2015 Fellowship
Latin American School for Education, Cognitive and Neural Sciences, San Pedro de Atacama, Chile
James S. McDonnell Foundation
- 2013 Otto Hahn Medal for outstanding scientific achievements
Max Planck Society
- 2012 Fellowship
Summer Institute in Cognitive Neuroscience, University of California, Santa Barbara
National Institute of Mental Health (NIMH)
- 2011 & 2012 Travel Grants
German Academic Exchange Service (DAAD)
- 2009 – 2011 Predoctoral Fellow
International Max Planck Research School "The Life Course: Evolutionary and Ontogenetic Dynamics (LIFE)"

Publications

Edited Special Issues

Fandakova, Y., Hartley, C. A., Bunge, S. A., Crone, E., & Lindenberger, U. (Eds.). (2020). Special Issue on Flux 2018: Mechanisms of learning and plasticity. *Developmental Cognitive Neuroscience*, 42.

Fandakova, Y., Bunge, S. A. (Eds.). (2016). Special Issue on Memory Research: Implications for Education. *Mind, Brain, and Education*, 10(3).

Peer-Reviewed Journal Articles & Book Chapters

2022

Broeker, L., Brüning, J., **Fandakova, Y.**, Khosravani, N., Kiesel, A., Kubik, V., Kübler, S., Manzey, D., Monno, I., Raab, M., & Schubert, T. (2022). Individual differences fill the uncharted intersections between cognitive structure, flexibility, and plasticity in multitasking. *Psychological Review*. <https://doi.org/10.1037/rev00003762021>

2021

Fandakova, Y., Johnson, E., & Ghetti, S. (2021). Distinct neural mechanisms underlie subjective and objective recollection and guide memory-based decision making. *eLife*, *10*, Article e62520. <https://doi.org/10.7554/eLife.62520>

Gruber, M. & **Fandakova, Y.** (2021). Curiosity in development – what can we learn from the brain? *Current Opinion in Behavioral Sciences*, *39*, 178–184. <https://doi.org/10.1016/j.cobeha.2021.03.031>

Sander, M. C., **Fandakova, Y.**, & Werkle-Bergner, M. (2021). Effects of age differences in memory formation on neural mechanisms of consolidation and retrieval. *Seminars in Cell and Developmental Biology*, *116*, 135–145. <https://doi.org/10.1016/j.semcdb.2021.02.005>

Nolden, S., Brod, G., Meyer A.-K., **Fandakova, Y.**, & Shing, Y.L. (2021). Neural correlates of successful memory encoding in preschool and elementary school children: Longitudinal trends and effects of schooling. *Cerebral Cortex*, *31*(8), 3764–3779. <https://doi.org/10.1093/cercor/bhab046>

Schwarze, S. A., Poppa, C., Gawronska, S. M., & **Fandakova, Y.** (2021). The more, the merrier? What happens in your brain when you try to perform multiple tasks simultaneously. *Frontiers for Young Minds*.

Fandakova, Y., & Gruber, M. J. (2021). Curiosity and surprise enhance memory differently in adolescents and in children. *Developmental Science*, *24*(1), e13005. <https://doi.org/10.1111/desc.13005>

Wenger, E., **Fandakova, Y.**, & Shing, Y. L. (2021). Episodic memory training. In T. Strobach & J. Karbach (Eds.), *Cognitive training: An overview of features and applications* (pp. 169–184). Springer. https://doi.org/10.1007/978-3-030-39292-5_12

2020

Fandakova, Y., & Hartley, C. A. (2020). Mechanisms of learning and plasticity in childhood and adolescence. *Developmental Cognitive Neuroscience*, *42*, Article 100764. <https://doi.org/10.1016/j.dcn.2020.100764>

Fandakova, Y., Werkle-Bergner, M., & Sander, M. C. (2020). (Only) time can tell: Age differences in false memory are magnified at longer delay. *Psychology and Aging*, *35*(4), 473–483. <https://www.doi.org/10.1037/pag0000465>

Ghetti, S. & **Fandakova, Y.** (2020). Neural development of memory and metamemory: Towards an integrative model of the development of episodic recollection. *Annual Review of Developmental Psychology*, *2*, 365–388. <https://doi.org/10.1146/annurev-devpsych-060320-085634>

Kailaheimo-Lönnqvist, L., Virtala, P., **Fandakova, Y.**, Partanen, E., Leppänen, P. H. T., Thiede, A., & Kujala, T. (2020). Infant event-related potentials to speech are associated with prelinguistic development. *Developmental Cognitive Neuroscience*, *45*, Article 100831. <https://doi.org/10.1016/j.dcn.2020.100831>

Laube, C., van den Bos, W., & **Fandakova, Y.** (2020). The relationship between pubertal hormones and brain plasticity: Implications for cognitive training in adolescence. *Developmental Cognitive Neuroscience*, *42*, Article 100753. <https://doi.org/10.1016/j.dcn.2020.100753>

Lee, J. K., **Fandakova, Y.**, Johnson, E. G., Cohen, N. J., Bunge, S. A., & Ghetti, S. (2020). Changes in anterior and posterior hippocampus differentially predict item-space, item-time, and item-item memory improvement. *Developmental Cognitive Neuroscience*, 41, Article 100741. <https://doi.org/10.1016/j.dcn.2019.100741>

Muehlroth, B. E., Sander, M. C., **Fandakova, Y.**, Grandy, T. H., Rasch, B., Shing, Y. L., & Werkle-Bergner, M. (2020). Memory quality modulates the effect of aging on memory consolidation during sleep: Reduced maintenance but intact gain. *NeuroImage*, 209, Article 116490. <https://doi.org/10.1016/j.neuroimage.2019.116490>

Sander, M. C., **Fandakova, Y.**, Grandy, T. H., Shing, Y. L., & Werkle-Bergner, M. (2020). Oscillatory mechanisms of successful memory formation in younger and older adults are related to structural integrity. *Cerebral Cortex*, 30(6), 3744–3758. <https://doi.org/10.1093/cercor/bhz339>

2019

Fandakova, Y., Leckey, S., Driver, C. C., Bunge, S. A., & Ghetti, S. (2019). Neural specificity of scene representations is related to memory performance in childhood. *NeuroImage*, 199, 105-113. <https://doi.org/10.1016/j.neuroimage.2019.05.050>

Muehlroth, B. E., Sander, M. C., **Fandakova, Y.**, Grandy, T. H., Rasch, B., Shing, Y. L., & Werkle-Bergner, M. (2019). Precise slow oscillation-spindle coupling promotes memory consolidation in younger and older adults. *Scientific Reports*, 9, Article 1940. <https://doi.org/10.1038/s41598-018-36557-z>

Selmeczy, D., **Fandakova, Y.**, Grimm, K. J., Bunge, S. A., & Ghetti, S. (2019). Longitudinal trajectories of hippocampal and prefrontal contributions to episodic retrieval: Effects of age and puberty. *Developmental Cognitive Neuroscience*, 36, Article 100599. <https://doi.org/10.1016/j.dcn.2018.10.003>

Sommer, V. R., **Fandakova, Y.**, Grandy, T. H., Shing, Y. L., Werkle-Bergner, M., & Sander, M. C. (2019). Neural pattern similarity differentially relates to memory performance in younger and older adults. *The Journal of Neuroscience*, 39(41), 8089–8099. <https://doi.org/10.1523/JNEUROSCI.0197-19.2019>

2018

Fandakova, Y., Bunge, S. A., Wendelken, C., Desautels, P., Hunter, L., Lee J. K., & Ghetti, S. (2018). The importance of knowing when you don't remember: Neural signaling of retrieval failure predicts memory improvement over time. *Cerebral Cortex*, 28(1), 90–102. <https://doi.org/10.1093/cercor/bhw352>

Fandakova, Y., Sander, M. C., Grandy, T. H., Cabeza, R., Werkle-Bergner, M., & Shing, Y. L. (2018). Age differences in false memory: The importance of retrieval monitoring processes and their modulation by memory quality. *Psychology and Aging*, 33(1), 119-133. <https://doi.org/10.1037/pag0000212>

2017

Fandakova, Y. & Ghetti, S. (2017). Memory. In B. Hopkins, E. Geangu, & S. Linkenauer (Eds.), *The Cambridge encyclopedia of child development* (pp. 322–330). Cambridge University Press.

Fandakova, Y., Selmeczy, D., Leckey, S., Grimm, K. J., Wendelken, C., Bunge, S. A., Ghetti, S. (2017). Changes in ventromedial prefrontal and insular cortex support the development of metamemory from childhood into adolescence. *Proceedings of the National Academy of Sciences of the United States of America*, 114(29), 7582-7587. <https://doi.org/10.1037/pag0000212>

2016

Fandakova, Y., & Bunge, S. A. (2016). What connections can we draw between research on long-term memory and student learning? *Mind, Brain, and Education*, 10(3), 135-142. <https://doi.org/10.1111/mbe.12123>

2015

Fandakova, Y., Lindenberger, U., & Shing, Y. L. (2015). Maintenance of youth-like processing protects against false memory in later adulthood. *Neurobiology of Aging*, 36(2), 933–941. <https://doi.org/10.1016/j.neurobiolaging.2014.10.022>

Fandakova, Y., Lindenberger, U., & Shing, Y. L. (2015). Episodic memory across the lifespan: General trajectories and modifiers. In D. R. Addis, M. D. Barense, & A. Duarte (Eds.) *The Wiley handbook on the cognitive neuroscience of memory* (pp. 309–325). Wiley-Blackwell Press.

2014

Fandakova, Y., Lindenberger, U., & Shing, Y. L. (2014). Deficits in process-specific prefrontal and hippocampal activations contribute to adult age differences in episodic memory interference. *Cerebral Cortex*, 24(7), 1832–1844. <https://doi.org/10.1093/cercor/bht034>

Fandakova, Y.*, Sander, M. C.*, Werkle-Bergner, M., & Shing, Y. L. (2014). Age differences in short-term memory binding are related to working memory performance across the lifespan. *Psychology and Aging*, 29, 140–149. <https://doi.org/10.1037/a0035347> *joint first authorship.

2013

Fandakova, Y., Shing, Y. L., & Lindenberger, U. (2013). Differences in binding and monitoring mechanisms contribute to lifespan age differences in false memory. *Developmental Psychology*, 49(10), 1822–1832. <https://doi.org/10.1037/a0031361>

Fandakova, Y., Shing, Y. L., & Lindenberger, U. (2013). High-confidence memory errors in old age: The roles of monitoring and binding processes. *Memory*, 21(6), 732–750. <https://doi.org/10.1080/09658211.2012.756038>

2012

Fandakova, Y., Shing, Y. L., & Lindenberger, U. (2012). Heterogeneity in memory training improvement among older adults: A latent class analysis. *Memory*, 20(6), 554–567. <https://doi.org/10.1080/09658211.2012.687051>

2011

Burgmans, S., Gronenschild, E. H. B. M., **Fandakova, Y.**, Shing, Y. L., van Boxtel, M. P. J., Vuurman, E. F. P. M., Uylings, H. B. M., Jolles, J., & Raz, N. (2011). Age differences in speed of processing are partially mediated by differences in axonal integrity. *NeuroImage*, 55(3), 1287–1297. <https://doi.org/10.1016/j.neuroimage.2011.01.002>

Shing, Y. L., Rodrigue, K. M., Kennedy, K. M., **Fandakova, Y.**, Bodammer, N., Werkle-Bergner, M., Lindenberger, U., & Raz, N. (2011). Hippocampal subfield volumes: Age, vascular risk, and correlation with associative memory. *Frontiers in Aging Neuroscience*, 3, Article 2. <https://doi.org/10.3389/fnagi.2011.00002>

Preprints

Abreu-Mendoza, R., Zarabozo-Hurtado, D., Chamorro, Y., Vasquez, P., Matute, E., & **Fandakova, Y.** (2020). The neural correlates of the core number systems contribute to mathematical achievement in adolescence. *PsyArXiv*. <https://psyarxiv.com/96tuy/>

Schwarze, S. A., Laube, C., Khosravani, N., Lindenberger, U., Bunge, S. A., & Fandakova, Y. (2022). Does prefrontal connectivity during task switching help or hinder children's performance? *BioRxiv*. <https://doi.org/10.1101/2022.10.04.510761>

Conference & Invited Talks (selection)

- 2022 Invited Talk: Cognitive control contributions to learning and memory: Lifespan development and neural plasticity. *Basque Center on Cognition, Brain and Language, Spain* (online)
- 2021 Invited Talk: Memory and cognitive control development. *Faculty of Psychology and Educational Sciences, Université Libre de Bruxelles, Belgium* (online)
 Invited Talk: Cognitive control contributions to learning and memory: Lifespan development and neural plasticity. *Center for Cognitive Neuroscience Berlin, Freie Universität Berlin, Germany* (online)
 Invited Talk: Cognitive control contributions to learning and memory: Lifespan development and neural plasticity. *Bravo Brain Seminar, Nanjing, China* (online)
 Symposium Talk: The development of task switching: Age differences in task set representations between children and adults. *Annual Conference Psychology and the Brain* (online)
- 2020 Invited Talk: Memory and metamemory development in childhood. *Changes in beliefs: how do humans revise their thoughts? (E-Workshop), Paris Institute for Advanced Study, France*
- 2019 Invited Talk: Memory development across the lifespan. *Cognitive Neuroscience of Memory: The Recollection, Familiarity and Novelty Detection Conference, University of Liège, Belgium*
 Symposium Talk: States of curiosity modulate learning in childhood and adolescence. *Biennial Meeting of the Society for Research in Child Development, Baltimore, MD, USA*
 Invited Talk: Cognitive control contributions to learning and memory: Lifespan development and neural plasticity. *Cardiff University Brain Imaging Center (CUBRIC), Cardiff University, UK*
- 2018 Commencement Speech for International Graduate Program Medical Neurosciences. *Charité – Universitätsmedizin, Berlin, Germany*
 Symposium Talk: Adult age differences in decisions about the accuracy of retrieval from episodic memory. *German Congress of Psychology (DGPS), Frankfurt am Main, Germany*
 Invited Talk: Cognitive control contributions to learning and memory development in childhood and adolescence. *Annual Flux Congress, Berlin, Germany*
 Symposium Talk: States of curiosity modulate learning in childhood and adolescence. *American Psychological Association Annual Convention, San Francisco, CA, USA*
 Invited Talk: Age differences in false memory are magnified at longer delays. *Cognitive Aging Conference, Atlanta, GA, USA*
 Invited Talk: Cognitive control processes for learning and memory across the lifespan. *Department of Psychology, Lund University, Sweden*
- 2017 Symposium Talk: Age differences in precision and reinstatement of neural representations: Contributions to memory development. *Biennial Meeting of the Society for Research in Child Development, Austin, TX, USA*
- 2016 Symposium Talk: Medial prefrontal contributions to the development of metamnemonic monitoring and control. *International Conference on Memory, Budapest, Hungary*
- 2015 Invited Talk: Development of memory regulation across the lifespan. *Department of Psychology, University of Pittsburgh, PA, USA*

- 2014 Symposium Talk: Neurodevelopment of source memory during middle childhood: Cross-sectional and longitudinal evidence. *Biennial Meeting of the Society for Research in Child Development, Philadelphia, PA, USA*
- 2014 Symposium Talk: Memory representation strength modulates the neural networks supporting associative recognition and novelty detection. *Annual Society for Neuroscience Meeting, Washington DC, USA*
- Invited Talk: The importance of knowing what you don't know: Exploring the neural basis of individual differences in monitoring of episodic memory. *Annual Flux Congress, Los Angeles, CA, USA*
- 2013 Symposium Talk: Heterogeneity in episodic memory control processes among older adults: Structural and functional findings. *Tagung experimentell arbeitender Psychologen (TeaP), Vienna, Austria*
- 2012 Symposium Talk: Age differences in memory monitoring and associative novelty detection contribute to older adults' increased susceptibility to false memory. *German Congress of Psychology (DGPS), Bielefeld, Germany*
- 2011 Symposium Talk: Adult age differences in monitoring highly familiar events. *Biennial Meeting of the Society for Research in Child Development, Montreal, Canada*

Public Outreach

Xenius documentary "Digital Stress", ARTE

<https://www.arte.tv/de/videos/078163-006-A/xenius/>

Radio documentary „Neuroplasticity“, Bayerischer Rundfunk

<https://www.br.de/mediathek/podcast/radiowissen/488>

Interview on the 60th birthday of the Memory game, Saarländischer Rundfunk

https://www.sr.de/sr/sr2/themen/kultur/20190415_memory_mit_zwillingen_selbstversuch102.html

Regular lectures on learning, memory and brain development in local high schools

Science mentor, *Frontiers for Young Minds*

Ad-hoc Reviews

Acta Psychologica; Aging, Neuropsychology and Cognition; Child Development; Cerebral Cortex; Cognition; Cognitive Development; Developmental Psychology; Developmental Science; eLife; Experimental Brain Research; Frontiers in Psychology; Journal of Experimental Psychology: General; Journal of Gerontology: Psychological Sciences; Journal of Neuroscience; Journal of Memory and Language; Hippocampus; Memory & Cognition; Nature Communications; Neurobiology of Aging; Neuron; Neuropsychologia; PLoS One; Psychology and Aging; Quarterly Journal of Experimental Psychology; Royal Society Open Science; Scientific Reports

Editorial Service

- 2022 – present Editorial Board Member, *Developmental Science*
- 2021 - present Associate Editor, *Mind, Brain, and Education*
- 2018 – 2020 Editorial Advisory Board, *Mind, Brain, and Education*

- 2018 – 2019 Guest Editor, Special issue of *Developmental Cognitive Neuroscience: Mechanisms of Learning and Plasticity*
- 2015 – 2016 Co-Editor, Special issue of *Mind, Brain, and Education: The relevance of memory research for education*

Professional Membership

Cognitive Neuroscience Society, Deutsche Gesellschaft für Psychologie, FLUX Society, Society for Neuroscience, Society for Research in Child Development, International Mind, Brain and Education Society (IMBES)

Student Supervision

Postdocs

- 2020 – 2021 Lieke de Boer
 2018 – 2020 Corinna Laube

Graduate Students

- 2021 – present Sina Schwarze
 2016 – present Neda Khosravani
 2018 Linda Lönnqvist, visiting student, University of Helsinki, Finland

Bachelor & Master Students

- Livia Jeffs University of Trier, Master thesis (2023)
 Zoya Mooraj Humboldt Universität zu Berlin, Master thesis (2021-2022)
 Sina Schwarze Freie Universität Berlin, Master thesis (2020)
 Kristia Pamungkas Freie Universität Berlin, Bachelor thesis (2019)
 Maike Hille Freie Universität Berlin, Master thesis (2018-2019)
 Roberto Abreu-
 Mendoza University of Guadalajara, visiting Master student (2018)
 Lana Riccius Universität Potsdam, Master thesis (2017-2018)
 Carolyn Murray University of California, Davis, Honors thesis (2016)

Service

- 2022 - present Member, examination board, Institute of Psychology, University of Trier
- 2020 – 2022 Gender Equality Officer, Max Planck Institute for Human Development
- 2019 – 2022 Member, personnel selection committee, Center for Lifespan Psychology, Max Planck Institute for Human Development
- 2017 - 2019 Member, ethics committee, Max Planck Institute for Human Development

Teaching

- Fall 2022 Seminars master modules Multivariate Statistics and Cognitive Psychology, Institute of Psychology, University of Trier
- Spring 2018 & 2019 Lecturer, *Cognitive and Brain Aging*, Institute of Psychology, Goethe-Universität, Frankfurt am Main

Fall 2017 & 2018	Guest Lecturer, <i>Lifespan Psychology</i> , Institute of Psychology, Humboldt Universität zu Berlin
Fall 2012 - 2017	Lecturer, <i>Human Research on Learning and Memory</i> , International Graduate Program Medical Neurosciences, Charité – Universitätsmedizin, Berlin, Germany (student award for superior instruction and educational guidance)
Spring 2016 & Fall 2014	Guest Lecturer, <i>The Developing Brain</i> , Department of Psychology, University of California, Berkeley
Summer 2015	Guest Lecturer, <i>Introduction to Human Learning and Memory</i> Department of Psychology, University of California, Berkeley
Fall 2012	Lecturer, <i>Cognitive Neuroscience of Episodic Memory Across the Lifespan</i> Department of Psychology, Freie Universität Berlin

Updated: January 2023