

Prof. Dr. Yana Fandakova

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Academic Positions

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| 2022 – present | University of Trier
Professor, Department of Psychology
Principal Investigator, <i>Learning Brain Lab</i>
Member, Institute for Cognitive & Affective Neuroscience |
| 2016 – 2022 | Max Planck Institute for Human Development, Berlin
Research Scientist
Co-Principal Investigator, <i>Mechanisms and Sequential Progression of Plasticity</i> , 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

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| 2012 | Humboldt-Universität zu Berlin
Dr. rer. nat., <i>summa cum laude</i>
Dissertation title: <i>Age and Individual Differences in True and False Memory Across the Lifespan</i> |
| 2008 | Humboldt-Universität zu Berlin
Dipl.-Psych., Major: Cognitive Psychology and Neuroscience |

Grants and Awards (selection)

2025 - 2028	<i>How curiosity enhances learning across childhood and adolescence: The role of metacognition and agency</i> German Research Foundation (DFG), 8 th Open Research Area for the Social Sciences Role: PI (Co-PIs: Matthias Gruber & Pierre-Yves Oudeyer) Total award: EUR 1 318 985, subaward: EUR 301 059
2024 - 2026	<i>Jacobs Foundation Research Fellowship</i> Role: PI Total award: CHF 165 000
2022	<i>UKRI Future Leaders Fellowship, Cardiff University (declined)</i> Role: PI Total award: £1 481 118
2019 – 2023	<i>How do students learn new concepts? Identifying factors that promote students' understanding of physical science concepts</i> Jacobs Foundation Role: PI (Co-PI: Silvia Bunge) Total Award: CHF 195 889, subaward: CHF 83 252
2018 – 2021	<i>Plasticity of Task Switching in Childhood: Mechanisms and Sequential Progression</i> German Research Foundation (DFG), DFG Priority Program SPP 1772 "Multitasking" Role: PI Total Award: EUR 275 720
2014 – 2016	<i>Relating changes in fronto-parietal networks to changes in control over memory: A longitudinal, cognitive neuroscience approach to memory development in childhood</i> Research Fellowship, German Research Foundation (DFG) Role: Postdoctoral Fellow Total Award: EUR 87 000

Invited Talks (selection)

2023	Cognitive control contributions to learning and memory: Lifespan development and neural plasticity. <i>NeuroCog 2023, Brussels, Belgium</i> Motor sequence learning in children and adults: Age differences in the neural underpinnings of representation and control systems. <i>The 52th Annual Meeting of The Jean Piaget Society, Madrid, Spain</i> Cognitive control contributions to learning and memory: Lifespan development and neural plasticity. <i>Institute of Psychology, Saarland University, Germany</i>
2022	Cognitive control contributions to learning and memory: Lifespan development and neural plasticity. <i>Basque Center on Cognition, Brain and Language, Spain (online)</i>
2021	Memory and cognitive control development. <i>Faculty of Psychology and Educational Sciences, Université Libre de Bruxelles, Belgium (online)</i> Cognitive control contributions to learning and memory: Lifespan development and neural plasticity. <i>Center for Cognitive Neuroscience Berlin, Freie Universität Berlin, Germany (online)</i> Cognitive control contributions to learning and memory: Lifespan development and neural plasticity. <i>Bravo Brain Seminar, Nanjing, China (online)</i>

- 2020 Memory and metamemory development in childhood. *Changes in beliefs: how do humans revise their thoughts? (E-Workshop)*, Paris Institute for Advanced Study, France
- 2019 Memory development across the lifespan. *Cognitive Neuroscience of Memory: The Recollection, Familiarity and Novelty Detection Conference*, University of Liège, Belgium
Cognitive control contributions to learning and memory: Lifespan development and neural plasticity. *Cardiff University Brain Imaging Center (CUBRIC)*, Cardiff University, UK

Public Outreach

Radio feature, „Setting limits for children“, SWR2
<https://www.swr.de/swr2/wissen/warum-grenzen-fuer-kinder-wichtig-sind-und-wie-man-sie-setzt-sw2-wissen-2023-05-27-100.html>

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 & Grant 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; PNAS nexus; Psychology and Aging; Quarterly Journal of Experimental Psychology; Royal Society Open Science; Scientific Reports; Trends in Cognitive Sciences

Waterloo Foundation, ANR, FWO, UKRI MRC, NSERC

Editorial Service

2024 - present	Editorial Board Member, <i>Communications Psychology</i>
2023 - 2024	Guest Editor, Special issue of <i>Memory: The neuroscience of false memory</i>
2022 – present	Editorial Board Member, <i>Developmental Science</i>
2021 – 2024	Associate Editor, <i>Mind, Brain, and Education</i>
2018 – 2020	Editorial Advisory Board, <i>Mind, Brain, and Education</i>
2018 – 2019	Guest Editor, Special issue of <i>Developmental Cognitive Neuroscience: Mechanisms of Learning and Plasticity</i>
2015 – 2016	Guest Editor, Special issue of <i>Mind, Brain, and Education: The relevance of memory research for education</i>

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 (Max Planck Institute for Human Development)
2018 – 2020	Corinna Laube (Max Planck Institute for Human Development)

Graduate Students

2023 - present	Shokouh Shomeil Zadeh Shoushtari (University of Trier)
2023 - present	Gülce Akin (University of Trier)
2021 – 2023	Sina Schwarze (Max Planck Institute for Human Development)
2016 – 2022	Neda Khosravani (Max Planck Institute for Human Development)
2018	Linda Lönnqvist, visiting student, University of Helsinki, Finland

Service

2024	Member, Program Committee, Flux Congress
2022 - present	Member, Fachbereichsrat (faculty council), Fachbereich I, University of Trier
2022 - present	Member, examination board, Department 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 - present	Seminars in bachelor and master modules on Multivariate Statistics/Cognitive Psychology/Developmental Psychology/Developmental Cognitive Neuroscience, Department of Psychology, University of Trier
Spring 2018 & 2019	Lecturer, <i>Cognitive and Brain Aging</i> , 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

Peer-Reviewed Journal Articles & Book Chapters

Fandakova, Y. & Wenger, E. (2024). Skill learning in the developing brain: Interactions of control and representation systems. *Psychology of Learning and Motivation*, 81, 1-40. <https://doi.org/10.1016/bs.plm.2024.07.002>.

Schwarze, S. A., **Fandakova, Y.**, & Lindenberger, U. (2024). Cognitive flexibility across the lifespan: developmental differences in the neural basis of sustained and transient control processes during task switching. *Current Opinion in Behavioral Sciences*, 58, 101395.

Fandakova, Y., & Lindenberger, U. (2024) Normal aging of frontal lobes and executive functions. *Encyclopedia of the Human Brain (2nd Ed.)*, Reference Module in Neuroscience and Biobehavioral Psychology. <https://doi.org/10.1016/B978-0-12-820480-1.00081-4>.

Stanciu, O., Jones, A., Metzner, N., **Fandakova, Y.**, & Ruggeri, A. (2024). The differential impact of active learning on children's memory. *Developmental Psychology*.

Schwarze, S. A., Laube, C., Khosravani, N., Lindenberger, U., Bunge, S. A., & **Fandakova, Y.** (2023). Does prefrontal connectivity during task switching help or hinder children's performance?. *Developmental Cognitive Neuroscience*, 60, 101217.

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>

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

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>
- 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>
- Fandakova, Y.**, Bunge, S. A., Wendelken, C., Desautels, P., Hunter, L., Lee J. K., & Ghetti, S. (2018a). 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. (2018b). 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>

- 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>
- 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>
- 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.
- 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.
- 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>
- 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>
- 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 & Manuscripts Under Review

- Schwarze, S. A., Laube, C., Khosravani, N., Lindenberger, U., Bunge, S. A., & **Fandakova, Y.** (2023)*. Intensive task-switching training and single-task training differentially affect

behavioral and neural manifestations of cognitive control in children. *bioRxiv*.
<https://doi.org/10.1101/2023.12.22.573065> **invited revision, Cerebral Cortex*

Schwarze, S. A., Bonati, S., Cichy, R. M., Lindenberger, U., Bunge, S., & **Fandakova, Y.**
(2023)*. Task-Switch Related Reductions in Neural Distinctiveness in Children and Adults:
Commonalities and Differences. *bioRxiv*. <https://doi.org/10.1101/2023.12.22.572358>
**invited revision, Journal of Neuroscience*

Fandakova, Y. & Akin, G. (under review)*. Cognitive control development in childhood:
Contributions from memory. **European Psychologist*

Edited Special Issues

Dennis, N. A., **Fandakova, Y.** (Eds.). (2024, *forthcoming*). The neuroscience of false
memory. *Memory*.

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). Memory Research: Implications for Education.
Mind, Brain, and Education, 10(3).