

## Curriculum vitae – Ben Eppinger

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### Personal information

<b>Office address:</b>	Concordia University, Loyola Campus, 7141 Sherbrooke West, Montreal, Quebec, Canada, H4B1R6	<b>Name</b>	Benjamin Eppinger
<b>Phone:</b>	+1(438)-4065599	<b>Birth date</b>	18 December 1976
<b>E-mail:</b>	ben.eppinger@concordia.ca	<b>Birth place</b>	Sindelfingen
		<b>Citizenship</b>	German

### Education

<b>2008</b>	Dr. phil. (PhD-equivalent) in Psychology, Saarland University. Title of the Dissertation: “One learns by experience. A life-span view on learning and error processing.”
<b>2004</b>	Diploma in Psychology at Saarland University Title of the thesis: “Age differences in cognitive control processes: Practice effects in reaction times and ERPs”
<b>1999-2004</b>	Studies of Psychology at Saarland University

### Professional experience

<b>Since June 2019</b>	Associate Professor of Psychology, Concordia University, Montreal, CA (tenured)
<b>Since June 2017</b>	Tier 2 Canada Research Chair (CRC) in cognitive neuroscience of decision making in healthy aging
<b>Since August 2016</b>	Associate Professor of Psychology, Concordia University, Montreal, CA
<b>2013 – 2016</b>	Assistant professor for neurocognitive development of motivational mechanisms, TU Dresden.
<b>2012</b>	Visiting professor for Developmental Psychology, University of Hamburg (shared with Dr. Yee-Lee Shing)

- 2010 – 2012** Research Scientist, Max Planck Institute for Human Development, Berlin (supervision: Prof. Shu-Chen Li, Prof. H.R. Heekeren)
- Since 2010** Visiting Research Collaborator, Woodrow Wilson School of Public and International Affairs, Princeton University
- 2007 – 2010** Postdoctoral Research Associate at the Princeton Neuroscience Institute, Princeton University (supervision: Prof. J.D. Cohen).
- 2005 – 2007** PhD student in the DFG/SFB Project “Aging, Resources, Cognition and Error-induced Learning”, Saarland University (supervision: Prof. J. Kray and Prof. A. Mecklinger)
- Memberships** Member of the Society for Neuroscience.
- Conference** Science of Learning Symposium, Berlin, 2018
- Ad-hoc reviewer** Biological Psychiatry, CABN, Cognition, Developmental Psychology, Developmental Cognitive Neuroscience, Current Biology, Developmental Neuropsychology, Frontiers in Neuroscience, Journal of Cognitive Neuroscience, Journal of Neuroscience, Journal of Psychophysiology, Nature Human Behavior, Nature Communications, Neurobiology of Aging, Neuroimage, Neuropsychologia, Journal of Gerontology: Psychological Sciences, Psychology and Aging, Psychophysiology, PNAS, Trends in Cognitive Sciences.
- Editorial boards** Cognitive, Affective and Behavioral Neuroscience, Associate editor  
Special issue on meta-control, Cognitive, Affective and Behavioral Neuroscience, Editor
- Additional affiliations**
- 2017 – present** Member, Decision neuroscience @ Montreal (D@M)
- 2017 – present** Researcher, PERFORM Centre
- 2017 – present** Member EngAGE, Centre for Research on Aging
- 2017 – present** Member CRDH, Centre for Research in Human Development
- 2016 – 2020** Researcher, Department of Psychology, TU Dresden, Germany

**2016 – 2018** Member, Leibnitz Focus group “From mice to men: Determinants of learning and neuronal plasticity during aging.”

**Grant review** Agence nationale de la recherche (ANR), Natural Sciences and Engineering Research Council of Canada (NSERC), Israel Science Foundation (ISF), Swiss National Science Foundation, National Science Foundation (NSF)

**Grants**

DAAD travel grant (€ 1496,00)

DAAD travel grant (€ 1496,00)

Adult age differences in decision-making and reward-based learning. NIA Pilot grant, Princeton Center for the Demography of Aging (\$69,317, 2008-2010).

Co-PI, Emotion-sensitive systems for training social cognition in younger and older adults, German Ministry for Education and Research (BMBF) (274.674,00 €, 2012-2016)

PI, Collaborative research center (SFB) project B7: Lifespan age differences in the arbitration of learning strategies (DFG), (529.716,00€, 2016-2020).

Tier 2 CRC in cognitive neuroscience of decision making in healthy aging, Concordia University, CIHR, (500.000,00 CAD, 2017-2022)

Canada Foundation for Innovation’s John R. Evans Leaders Fund (236.983,00 CAD, 2017-2022) PI, NSERC Discovery grant Age-related impairments in the flexible allocation of control during learning and decision-making (165.000,00 CAD 2018-2023)

Co-PI, SRNDNA NIA Pilot grant (30.000,00 USD over 1 year)

Collaborative research center (SFB) project B7/2: The impact of efficiency-flexibility trade-offs on learning strategies across the lifespan (DFG), (204.805,00 € 2020-2024).

## Teaching

*Application of basic learning sciences in the classroom*, Educational Sciences (TU Dresden, SS 2020); *Developmental cognitive neuroscience: Basic research and potential implications for educational and health interventions*, PSYC 725, Concordia University (Winter Term 2019); *Judgement and Decision Making*, PSYC 464, Concordia University (Fall Term 2019); *Application of basic learning sciences in the classroom*, Educational Sciences (TU Dresden, SS 2019); *Fundamentals of Cognition*, PSYC 364, Concordia

University (Winter Term 2018); *Judgement and Decision Making*, PSYC 464, Concordia University (Fall Term 2018); *Application of basic learning sciences in the classroom*, Educational Sciences (TU Dresden, SS 2018); *Fundamentals of Cognition*, PSYC 364, Concordia University (Winter Term 2017); *Judgement and Decision Making*, PSYC 464, Concordia University (Fall Term 2017); *Judgement and Decision Making*, PSYC 464, Concordia University (Winter Term 2017); *Emotional and motivational development across the lifespan*. Seminar, Bachelor Psychology (TU Dresden, SS 2016); *Neurocognitive development across the lifespan*, Master Psychology (TU Dresden, WS 2015/16); *Social development during childhood and adolescence* Seminar, Diploma, Social Sciences (TU Dresden, WS 2015/16); *Decision mechanisms across the lifespan*. Seminar, Bachelor Psychology (TU Dresden, WS 2015/16); *Reinforcement learning*. Workshop at the MPI for Human Development (SS 2015, together with Rasmus Bruckner); *Emotional and motivational development across the lifespan*. Seminar, Bachelor Psychology (TU Dresden, SS 2015); *Lifespan Neuroscience of Social and Goal-directed Behavior*, Master Psychology (TU Dresden, SS 2015); *Cognitive and motivational development across the lifespan*. Seminar, Diploma, Social Sciences (TU Dresden, WS 2014/15); *Decision mechanisms across the lifespan*. Seminar, Bachelor Psychology (TU Dresden, WS 2014/15); *Emotional and motivational development across the lifespan*. Seminar, Bachelor Psychology (TU Dresden, SS 2014); *Lifespan Neuroscience of Social and Goal-directed Behavior*, Master Psychology (TU Dresden, SS 2014); *Decision mechanisms across the lifespan*. Seminar, Bachelor Psychology (TU Dresden, WS 2013/14); *Social development during childhood and adolescence* Seminar, Diploma, Social Sciences (TU Dresden, WS 2013/14); *Emotional and motivational development across the lifespan: A cognitive neuroscience approach*. Seminar, Bachelor Psychology (TU Dresden, SS 2013); *Developmental cognitive neuroscience of learning*. Seminar, Educational Sciences (TU Dresden, SS 2013); *Development of social behavior: A cognitive neuroscience perspective*. Seminar, Master (TU Dresden, WS 2012); *Developmental cognitive neuroscience*. (2 courses), Bachelor (University of Hamburg, SS 2012); *Research Methods Seminar*, Bachelor and Master (University of Hamburg, SS 2012); *Social developmental neuroscience*, Seminar Bachelor (Free University, Berlin, WS 2011/2012); *A lifespan view on developmental cognitive neuroscience*, Seminar, Diploma (Saarland University, WS 05/06).

**Supervised diploma/master theses:** Barbara Mock (2007, diploma thesis). Title: Developmental differences in learning and error processing. Michael Herbert (2010, diploma thesis). Title: Can older adults profit from salient feedback during reinforcement learning? An ERP-Study. Maik Walter (2013, master thesis). Title: Age differences in model-free versus model-based contributions to learning. Rasmus Bruckner (2013-2014, master thesis). Title: Belief updating: The modulating role of dopaminergic prediction error responsivity in adolescents. Lea Bartsch (2014-2015, master thesis). Title: Using TMS to affect model-based learning. Sean Devine (2019-2020, master thesis). Title: Age differences in prevalence-induced concept change.

**Supervised dissertations:** Julia Rodriguez Buritica (2011-2016, dissertation) Title: Developmental differences in observational learning. Rasmus Bruckner (2015-2020, dissertation). Title: Age differences in adaptive learning: A neuro-computational approach. Florian Bolenz (2016-

2020, dissertation). Title: Age differences in the arbitration of learning strategies. Joni Shuchat (2017-2022, dissertation). Title: Age differences in the learning of latent states. Maxine Profitt (2017-2022, dissertation). Title: Effects of subclinical ADHD on goal-directed behavior. Susanne Neupert (2018-2022, dissertation). Title: Successor representation learning across the lifespan. Alexa Ruel (2018-2022, dissertation). Title: Development of goal-directed decision processes.

## Publications

- Eppinger, B.** Ruel, A., & Bolenz, F. (in prep.) Diminished state space (DSS) hypothesis of human aging.
- Ruel, A., Bolenz, F., Li, S.-C., **Eppinger, B.** (in prep.) Age differences in model-based decision-making under varying demands on the representation of state spaces.
- Bruckner, R., Nassar, M. R., Li, S.-C., & **Eppinger, B.** (in prep.) Default beliefs guide learning under uncertainty under uncertainty in children and older adults. <https://psyarxiv.com/nh9bq/>
- Devine, S., Neuman, C., Wilson, R.C. Levari, D.E., & **Eppinger, B.** (sub.) Less prevalence-induced concept change in older adults. <https://psyarxiv.com/uhcp7>
- Bolenz, F., Profitt, M., Stechbarth, F., **Eppinger, B.**, Strobel, A. (sub.). Need for cognition does not account for individual differences in meta-control of decision making. <https://psyarxiv.com/d7y4w>
- Devine, S., Otto, R.A., Bolenz, F., Reiter, A.M.F., & **Eppinger, B.** (under revision). Cognitive resource limitations shift effort trade-offs across the lifespan. <https://psyarxiv.com/9m6au/>
- Reiter, A.M.F., Diaconescu, A. O., **Eppinger, B.**, & Li, S.-C. (under review). Human aging alters Bayesian belief social inference about others' changing intentions. <https://psyarxiv.com/3etup/>
- Bolenz, F. & **Eppinger, B.** (under review) Valence biases in the meta-control of decision-making in adolescents and young adults <https://psyarxiv.com/5u9jq>
- Rodriguez-Buritica, J. M., **Eppinger, B.**, Heekeren, H. R., Crone, E.A., & van Duijvenvoorde, A., C., K. (*under revision*). Examining Observational Reinforcement Learning Across Development
- Devine, S., Neuman, C., Wilson, R.C. Levari, D.E., & **Eppinger, B.** (2020) Prevalence-induced concept change in older adults. Proceedings of the 42nd Annual Meeting of the Cognitive Science Society
- Reiter, A. M. F., Suzuki, S., O'Doherty, J. P., Li, S.-C., & **Eppinger, B.** (2019). Risk contagion by peers affects learning and decision-making in adolescents. *JEP; General*, 148(9):1494-1504.
- Bolenz, F., Kool, W., Reiter, A.M.F., **Eppinger, B.** (2019) Meta-control of learning strategies in human aging. *eLife*, 8:e49154.

- Kroemer, N. B., Lee, Y., Pooeh, S., Schad, D. J., **Eppinger, B.**, Goschke, T., & Smolka, M. N. (2019). L-DOPA Reduces Model-Free Control of Behavior by Attenuating the Transfer of Value to Action. *Neuroimage*, *186*: 113-125.
- Rodriguez-Buritica, J. M., Heekeren, H. R., Li, S.-C., & **Eppinger, B.** (2018). Developmental differences in the neural dynamics of observational learning. *Neuropsychologia*, *119*: 12-23
- van den Bos, W., Bruckner, R., Nassar, M. R., Mata, R., & **Eppinger, B.** (2018). Computational Neuroscience across the Lifespan: promises and pitfalls. *Developmental Cognitive Neuroscience*, *33*: 42–53.
- Eppinger, B.**, Heekeren, H. R., & Li, S.-C. (2018). Adult age and individual differences in intertemporal choice under subjective decision conflict. *Cerebral Cortex*, *28*: 3764–3774
- Wittkuhn, L., **Eppinger, B.**, Bartsch, L., Thurm, F., Korb, F.M., & Li, S.-C. (2018). Repetitive transcranial magnetic stimulation over the dorsolateral prefrontal cortex modulates value-based learning during sequential decision-making. *Neuroimage*, *167*: 384-395.
- Bolenz, F., Reiter, A., & **Eppinger, B.** (2017). Developmental changes in learning: Computational mechanisms and social influences. *Frontiers in Psychology*.
- Reiter, A., Kanske, P., **Eppinger, B.**, & Li, S.-C. (2017). The Aging of the Social Mind: Differential Effects on Components of Social Understanding. *Scientific Reports*, *7*: 1-8.
- Eppinger, B.**, Walter, M., & Li, S.-C. (2017). Electrophysiological correlates reflect the integration of model-based and model-free decision information. *Cognitive, Affective and Behavioral Neuroscience*.
- Nassar, M. R., Bruckner, R., & **Eppinger, B.** (2016b). What do we GANE with age? *Behavioral and Brain Sciences* (commentary on Mather, M., Clewett, D., Sasaki M., & Harley C.W.).
- Nassar, M. R., Bruckner, R., Gold, J. I., Li, S.-C., Heekeren, H. R., & **Eppinger, B.** (2016a). Age differences in learning emerge from an insufficient representation of uncertainty in older adults. *Nature Communications*, *7*, 1-13.
- Rodriguez-Buritica, J., **Eppinger, B.**, Schuck, N. W., Heekeren, H. R., & Li, S.-C. (2016). Electrophysiological correlates of observational learning in children. *Developmental Science*, *19*, 699-709.
- van den Bos, W., & **Eppinger, B.** (2016). Developing developmental cognitive neuroscience: From agenda setting to hypothesis testing. *Developmental Cognitive Neuroscience*, *17*, 138-144.
- Li, S.-C., & **Eppinger, B.** (2016). Lifespan development of adaptive neurocognitive representations: Reciprocal interactions between cognition and motivation. In T. Braver (Ed.), *Handbook of Motivation and Control*: Academic Press.
- Eppinger, B.**, Heekeren, HR, Li, S-C (2015) Age-related prefrontal impairments implicate deficient prediction of future reward. *Neurobiology of Aging* *36*:2380-2390.

- Eppinger, B.**, & Bruckner, R. (2015). Age-related changes in learning and decision-making under uncertainty. In T. M. Hess, C. E. Loeckenhoff & J. Strough (Eds.), *Aging and Decision Making: Empirical and Applied Perspectives*: Elsevier.
- Störmer, V., **Eppinger, B.**, & Li, S.-C. (2014). Reward speeds up and increases reliability of selective visual attention: a lifespan comparison. *Cognitive, Affective and Behavioral Neuroscience*
- Eppinger B.**, Walter M, Heekeren HR, Li S-C (2013) Of goals and habits: Age-related and individual differences in goal-directed decision-making. *Frontiers in Decision Neuroscience* 7:1-14.
- Eppinger, B.**, Schuck, N.W., Nystrom, L.E., Cohen, J.D. (2013) Reduced striatal responses to reward prediction errors in older compared to younger adults. *Journal of Neuroscience* 33:9905-9912.
- Eppinger, B.**, Nystrom, L., & Cohen, J. D. (2012). Reduced sensitivity to immediate reward during decision-making in older than younger adults. *PLoS ONE*, 7(5), 1-10.
- Haemmerer, D., & **Eppinger, B.** (2012). Dopaminergic and prefrontal contributions to reward-based learning and outcome monitoring during child development and aging. *Developmental Psychology*, 48, 862-874.
- Eppinger, B.**, Haemmerer, D., & Li, S.-C. (2011). Neuromodulation of reward-based learning and decision making in human aging. *Annals of the New York Academy of Sciences*, 1235, 1-17.
- Herbert, M., **Eppinger, B.**, & Kray, J. (2011). Younger but not older adults benefit from salient reward feedback during learning. *Frontiers in Cognition*, 2, 1-9.
- Eppinger, B.**, Kray, J. (2011). To choose or to avoid: Age differences in learning from positive and negative feedback. *Journal of Cognitive Neuroscience*, 23, 41-52.
- Eppinger, B.**, Herbert, M., & Kray, J. (2010). We remember the good things. Age differences in learning and memory. *Neurobiology of Learning and Memory*, 93, 515-521.
- Eppinger, B.**, Mock, B., & Kray, J. (2009). Developmental differences in learning and error processing: Evidence from ERPs. *Psychophysiology*, 46, 1-11.
- Kray, J., & **Eppinger, B.** (2009). An event-related potential (ERP) approach to study cognitive control processes. In M. Crocker & J. Siekmann (Eds.), *Resource-adaptive cognitive processes*: Springer.
- Eppinger, B.**, Kray, J., Mock, B., & Mecklinger, A. (2008). Better or worse than expected? Aging, Learning, and the ERN. *Neuropsychologia*, 46, 521-539.
- Eppinger, B.**, Kray, J., Mecklinger, A., & John, O. (2007). Age differences in task switching and response monitoring: Evidence from ERPs. *Biological Psychology*, 75, 52-67.
- Kray, J., & **Eppinger, B.** (2006). Effects of associative learning on age differences in task-set switching. *Acta Psychologica*, 123, 187-203.

Kray, J., **Eppinger, B.**, & Mecklinger, A. (2005). Age differences in attentional control: An event-related potential approach. *Psychophysiology*, 42, 407-416.

### **Selected talks and colloquium presentations**

Eppinger B. (2020) Neurobiologische Mechanismen des Lernens: Entwicklungsbedingte und interindividuelle Unterschiede. *Talk at Universität Landau*

Eppinger B. (2019) Learning and decision-making across the human lifespan. *Talk at the Donders Institute for Cognition, Brain and Behaviour, Nijmegen*

Eppinger B. (2018) Learning and decision-making across the lifespan. *Talk at Universität Mainz*

Eppinger B. (2018) Effects of human aging on model-based control during learning and decision-making. *Talk at the Annual Meeting of the Society for Neuroscience, San Diego*

Eppinger B. (2018) Altersbedingte Veränderungen im Lern- und Entscheidungsverhalten: Grundlagenforschung und ihre Anwendungsmöglichkeiten. *Talk at Universität Siegen*

Eppinger B. (2018) Neural correlates of observational learning across development, *Talk at FLUX Conference, Berlin*

Eppinger B. (2018) Lifespan developmental differences in the effects of opportunity costs on cognitive effort, *Talk at FLUX Conference, Berlin*

Eppinger B. (2018) Age differences in learning and decision-making across the human lifespan: A neuro-computational approach. *Talk at Georgetown University*

Eppinger B. (2018) Developmental changes in social learning and decision-making: Integration of findings and potential applications *Talk at Psychologie und Gehirn, Giessen*

Eppinger B. (2017) Computational and neuroscience approaches to age differences in learning and decision-making. *Talk at the Montreal Neuroscience Institute (MNI)*

Eppinger B. (2016) From simple mappings to complex state spaces. Lifespan age differences in learning. *Talk at Hamburg University*

Eppinger B. (2016) Computational and neuroscience approaches to age differences in learning and decision-making across the human lifespan. *Talk at the MPI for Demographic Research, Rostock.*

Eppinger B. (2016) Lifespan age differences in goal-directed learning and decision-making. *Talk at Concordia University, Montreal.*

Eppinger B, Bruckner R, Nassar MR (2015) A normative computational approach to age differences in learning across the human lifespan. *Talk at the Congress of the Swiss Society for Psychology, Geneva*

Eppinger, B., Heekeren, H. R., & Li, S.-C. (2015). Age-related deficits in prefrontal learning mechanisms. *Talk at the SRNDNA conference, Miami.*



- Eppinger, B., Heekeren, H. R., & Li, S.-C. (2014). Prefrontal deficits in older adults implicate a shift from model-based to model-free learning and decision-making strategies. Talk at the *Annual Meeting of the Society for Neuroscience, Washington DC*.
- Eppinger, B., Heekeren, H. R., & Li, S.-C. (2014). Of goals and habits: Age-related changes in learning and decision-making, Talk at the *Department of Psychology, Giessen University*.
- Eppinger, B., Heekeren, H. R., & Li, S.-C. (2014). Of goals and habits: Age differences in learning and decision-making, Talk at the *Department of Psychology, Magdeburg University*.
- Eppinger, B., Heekeren, H. R., & Li, S.-C. (2013). Of goals and habits. Age-related impairments in learning and decision-making, Talk at the *Department of Psychology, Yale University*.
- Eppinger, B., Heekeren, H. R., & Li, S.-C. (2013). Lost in transition. Age-related impairments in model-based learning and decision-making, Talk at the *Aging and Cognition Conference, Dortmund*.
- Eppinger, B., Heekeren, H. R., & Li, S.-C. (2013). Der Wettstreit kurzfristiger und langfristiger Ziele: Altersbedingte Veränderungen beim Lernen und Entscheiden, Talk at the *Department of Psychology, Universitaet Konstanz*.
- Eppinger, B., Heekeren, H. R., & Li, S.-C. (2013). Ziele und Gewohnheiten: Die Entwicklung modellbasierten Entscheidungsverhaltens, Talk at the *Department of Psychology, Universität Heidelberg*.
- Eppinger, B., Heekeren, H. R., & Li, S.-C. (2013). Lost in transition. Age-related deficits in model-based learning and decision-making, Talk at the *Department of Psychology, Oxford University*.
- Eppinger, B., Heekeren, H. R., & Li, S.-C. (2013). Age-related impairments in habitual and goal-directed learning, Talk at the *ARC Research group, Max-Planck Institute for Human Development*.
- Eppinger, B., Nystrom, L., & Cohen, J.D. (2010). Age-related changes in the neural correlates of intertemporal decision-making and reward-based learning, Talk at the *Aging and Cognition Conference, Dortmund*.
- Eppinger, B., & Kray, J. (2008). To choose or to avoid: Age-related changes in learning and error processing, Talk at the *Annual Meeting of the Society for Neuroscience, Washington DC*.
- Eppinger, B., & Kray, J. (2008). To choose or to avoid: ERP correlates of learning in younger and older adults, Talk at the *Annual Meeting of the Gerontological Society of America, Washington DC*.

**Languages:**

German (native), English (fluent), French (basic)