Curriculum Vitae –Michael Schneider

Personal Information

Name and Title	Prof. Dr. Michael Schneider
Current Position	Full Professor (W3) of Educational Psychology
Office address	Division I - Psychology University of Trier 54286 Trier Germany
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Mail	m.schneider@uni-trier.de
Homepage	www.educational-psychology.uni-trier.de
Born	1975 in Bremen, Germany

Degrees

03/2006	Doctor of philosophy (Dr. phil.), Technical University Berlin, Germany, Title: *Konzeptuelles und prozedurales Wissen als latente Faktoren: Ihre Interaktion beim Lernen mit Dezimalbrüchen*, advisors: Prof. Dr. Elsbeth Stern, Prof. Dr. Helmut Jungermann
09/2002	Diploma in Psychology (Dipl. Psych.), Technical University Berlin, Germany, advisor: Prof. Dr. Helmut Jungermann
04/2001	"Zwischenprüfung" in Philosophy, Technical University Berlin, Germany
07/1995	High school diploma (Abitur), Schulzentrum Bördestraße, Bremen, Germany

Positions

09/2011 – present	Full Professor (W3) of Educational Psychology, University of Trier, Germany
09/2007 – 06/2008	Postdoc, funded by the German Research Foundation (DFG), Developmental Psychology (Robert S. Siegler), Carnegie Mellon University, Pittsburgh, USA
09/2006 – 08/2011	Postdoc, Research on Learning and Instruction (Elsbeth Stern), ETH Zurich, Switzerland
07/2006 – 08/2006	Associated research scientist, Socio-economical panel (Gert G. Wagner), German Institute for Economic Research, Berlin, Germany
11/2005 – 06/2006	Scientific secretary, Neuroscience-Instruction-Learning (NIL)-program of the German Ministry of Education and Research, Berlin, Germany
11/2005 – 03/2006	Researcher, Enterprise Project (Elsbeth Stern), Educational Research, Max Planck Institute for Human Development, Berlin, Germany
11/2002 – 10/2005	PhD student, Enterprise Project (Elsbeth Stern), Educational Research, Max Planck Institute for Human Development, Berlin, Germany
02/2001 – 09/2002	Student research assistant, TIMSS und PISA 2000, Educational Research (Prof. Jürgen Baumert), Max Planck Institute for Human Development, Berlin, Germany

Research Interests

- Learning and instruction in the STEM (science, technology, engineering, mathematics) domains
- Effective teaching practices in higher education
- Co-development of conceptual understanding and problem solving skills
- Numerical cognition
- Multivariate methods and meta-analyses in the learning sciences

Stipends and Awards

2014/15	Teaching Award of the State Rheinland-Pfalz
2015	Teaching Award for classes in the MSc Psychology program, University of Trier
2014	Teaching Award for lectures in Psychology, University of Trier
2012	Teaching Award for lectures in Psychology, University of Trier
02/1997 – 09/2001	Student stipend of the German National Merit Foundation (Studienstiftung des Deutschen Volkes)

Grants

10/2008 – 09/2011	Co-investigator; grant in the Neuroscience-Instruction-Learning program of the German Ministry for Education and Research; project title: *Domain-general and Domain-specific Correlates of Mathematical Achievement in Primary School Children: A longitudinal study on the interplay of basic numerical and executive control functions*
09/2007 – 05/2008	Principle investigator; grant SCHN1097/2-1 of the German Research Foundation; project title: *Kausaldeterminanten der Entwicklung numerischer Schätzkompetenzen im Grundschulalter: Eine mikrogenetische Studie* [Influences on numerical estimation in elementary school], cooperation project with Prof. Robert S. Siegler in Pittsburgh, USA
06/2007 – 05/2008	Co-investigator; grant in the Neuroscience-Instruction-Learning program of the German Ministry for Education and Research; project title: *Contributions of Visuo-Spatial Deficits to Mathematical Disabilities in Children: Bridging the Gap from Neurocognitive Systems to Mathematical Achievement*
04/2006	Travel stipend of the German Research Foundation for a presentation at the Annual Meeting of the American Educational Research Association (AERA) in San Francisco, USA

Classes Taught

BSc Psychology and MSc Psychology Programs, University of Trier, Germany

- Lecture *Educational Psychology*
- Lecture *Development and Learning*
- Lecture *Multivariate Statistics*
- Seminar *Effective Teaching Methods in Higher Education*
- Seminar *Learning in Infancy and Early Childhood*

Master of Advanced Studies in Secondary and Higher Education, ETH Zurich, Switzerland

- Lecture *The Design of Learning Environments for School* (with Jacqueline Egli & Peter Greutmann)
- Seminar *New Developments in Research on Learning and Instruction*
- Project seminar *Empirical Project on Learning and Instruction*

Other classes and workshops

- One-day workshop *Implications of the Learning Sciences for University Teaching* (co-teaching with Roland H. Grabner), Didactica Programme, Zurich, Switzerland
- Seminar *Cognitive Development* (with Robert S. Siegler), Carnegie Mellon University, Pittsburgh, USA
- Seminar *Early Childhood Development* (with Jürgen Baumert), HU Berlin, Germany
- Two-day workshop *Structural Equation Modeling with MPlus: A Gentle Introduction*, ETH Zurich, Switzerland

Collaboration Partners

- Daniel Ansari, Developmental Cognitive Neuroscience, University of Western Ontario, Canada
- Roland Grabner, Research on Giftedness and Learning, University of Graz, Austria
- Bethany Rittle-Johnson, Developmental Science, Vanderbilt University, USA
- Robert S. Siegler, Developmental Psychology, Carnegie Mellon University, USA
- Elsbeth Stern and her research group, Research on Learning and Instruction, ETH Zurich, Switzerland
- Clarissa A. Thompson, Developmental and Cognitive Psychology, University of Oklahoma, USA
- Lieven Verschaffel and his research group, Educational Sciences, K.U. Leuven, Belgium
- Romain Martin, Educational Measurement and Applied Cognitive Science, University of Luxembourg

Professional Service

- Member of the expert group of the *Innovative Learning Environments* project of the Organisation for Economic Co-operation and Development (OECD) (2009)
- Coordinator of the Special Interest Group *Conceptual Change* of the European Association for Research on Learning and Instruction (EARLI) (2009 - 2013)
- Member of Editorial Advisory Boards: *Learning and Instruction* (2013-2015), *Frontline Learning Research* (2013-2015)
- Conferences:
    - Chair of the *8th International Conference on Conceptual Change*, University of Trier, Germany (September 1-4, 2012);
    - Member of the international program committee of the EARLI Advanced Study Colloquium *Cognitive Neuroscience Meets Mathematics Education* in Brugge, Belgium (2009)
- Ad-hoc reviewer for funding organizations: Estonian Science Foundation (2010), Israel Science Foundation (2013), German Research Foundation (2013); Leverhulme Trust (2015); Research Foundation Flanders, Belgium (2010, 2011)
- Member of PhD evaluation committees:
    - PhD of Caroline Hornung, University of Luxembourg (2010);
    - PhD of Greet Peters, University of Leuven, Belgium (2013);
    - PhD of Carrie Kovacs, University of Luxembourg (2013);
    - PhD of Katharina Vogl, University of Trier (2015);
    - PhD of Julian Rubel, University of Trier (2015)
- Ad-hoc reviewer for scientific journals: *Clinical Neurology and Neurosurgery; Cognition; Cognitive Development; Cognitive Psychology; Cognitive Science; Developmental Psychology; Developmental Science; Experimental Psychology; Frontline Learning Research; Journal of Experimental Psychology: Learning, Memory & Cognition; Learning and Individual Differences; Learning and Instruction; Mathematical Thinking and Learning; Mind, Brain & Education; Psychologie in Erziehung und Unterricht; Psychotherapie, Psychosomatik, Medizinische Psychologie; Quarterly Journal of Experimental Psychology; Trends in Cognitive Sciences; ZDM - International Journal on Mathematics Education*

University Administration (examples)

- Managing Director, Department of Psychology, University of Trier (2014-2015)
- Coordinator of the *BSc Psychology* program, University of Trier, Germany (since 2012)
- Coordinator of the *MSc Psychology* program, University of Trier, Germany (since 2015)
- Representative of the mid-level faculty in the department conference of the Department of Humanities, Social and Political Sciences (D-GESS), ETH Zurich, Switzerland (2010-2011)

Memberships

- Deutsche Gesellschaft für Hochschuldidaktik (DGHD)
- Cognitive Science Society (CSS)
- Deutsche Gesellschaft für Psychologie (DGPs)
  - Special interest group *Developmental Psychology*
  - Special interest group *Educational Psychology*
- European Association for Research on Learning and Instruction (EARLI)
  - Special interest group *Conceptual Change*
  - Special interest group *Neuroscience and Education*

Publications

Editorships

Schneider, M., & Mustafić, M. (eds.) (2015). *Gute Hochschullehre: Eine evidenzbasierte Orientierungshilfe*. Heidelberg: Springer. doi: 10.1007/978-3-662-45062-8

Grabner, R. H., Ansari, D., **Schneider, M.**, De Smedt, B., Hannula, M., Stern, E. (eds.) (2010). ZDM – International Journal on Mathematics Education (Special issue on *Cognitive Neuroscience and Mathematics Education Research*), 42(6).

Articles in Peer-Reviewed Journals

Alcock, L, Ansari, D., Batchelor, S., Bisson, M.-J., De Smedt, B., Gilmore, C., ... (in press). Challenges in mathematical cognition: A collaboratively-derived research agenda. *Journal of Numerical Cognition*.

Schneider, M., Beeres, K., Coban, L., Simon, M., Schmidt, S. S., Stricker, J., De Smedt, B. (in press). Associations of non-symbolic and symbolic numerical magnitude processing with mathematical competence: A meta-analysis. *Developmental Science*. doi: 10.1111/desc.12372

Torbeyns, J. **Schneider, M.**, Xin, Z., & Siegler, R. S. (2015). Bridging the gap: Fraction understanding is central to mathematics achievement in students from three different continents. *Learning and Instruction, 37*, 5-13. doi: 10.1016/j.learninstruc.2014.03.002.

Rittle-Johnson, B., **Schneider, M.**, & Star, J. (2015). Not a one-way street: Bi-directional relations between procedural and conceptual knowledge of mathematics. *Educational Psychology Review, 27*, 587-597. doi: 10.1007/s10648-015-9302-x

Edelsbrunner, P., & **Schneider, M.** (2013). Modelling for prediction vs. modelling for understanding: Commentary on Musso et al. (2013). *Frontline Learning Research, 2*, 99-101.

Heine, A., Wißmann, J., Tamm, S., De Smedt, B., **Schneider, M.**, Stern, E., Verschaffel, L., & Jacobs, A. M. (2013). An electrophysiological investigation of non-symbolic magnitude processing: Numerical distance effects in children with and without mathematical learning disabilities. *Cortex, 49*(8), 2162-2177. doi: 10.1016/j.cortex.2012.11.009

Schneider, M., * & Hardy, I. * (2013). Profiles of inconsistent knowledge in children's pathways of conceptual change. *Developmental Psychology, 49*(9), 1639-1649. doi: 10.1037/a0030976
* both authors contributed equally

Vogel, S. E., Grabner, R. H., **Schneider, M.**, Siegler, R. S., & Ansari, D. (2013). Overlapping and distinct brain regions involved in estimating the spatial position of numerical and non-numerical magnitudes: An fMRI study. *Neuropsychologia, 51*(5), 979-989. doi: 0.1016/j.neuropsychologia.2013.02.001

Schneider, M. (2012). Kowledge integration in mathematics learning: The case of inversion. *Educational Studies in Mathematics, 79*(3), 447-453.

De Smedt, B., Ansari, D., Grabner, R. H., Hannula-Sormunen, M., **Schneider, M.**, & Verschaffel, L. (2011). Cognitive neuroscience meets mathematics education: It takes two to tango [Reply to Turner, 2011]. *Educational Research Review, 6*, 232-*237.*

Schneider, M., Rittle-Johnson, B., & Star, J. R. (2011). Relations between conceptual knowledge, procedural knowledge, and procedural flexibility in two samples differing in prior knowledge. *Developmental Psychology*, 46, 1525-1538.

Siegler, R. S., Thompson, C. A., & **Schneider, M.** (2011). An integrated theory of whole number and fractions development. *Cognitive Psychology, 62*(4), 273-296.

Stern, E., & **Schneider, M.** (2010). A digital road map analogy of the relationship between neuroscience and educational research. [Editorial]. *ZDM – International Journal on Mathematics Education (special issue on neuroscience and mathematics educational research), 42*(6), 511-514.

Schneider, M., & Siegler, R. S. (2010). Representations of the magnitudes of fractions. *Journal of Experimental Psychology: Human Perception and Performance, 36*(5), 1227-1238.

Heine, A., Tamm, S., De Smedt, B., **Schneider, M.**, Thaler, V., Torbeyns, J., Stern, E., Verschaffel, L., & Jacobs, A. M. (2010). The numerical Stroop effect in primary school children: A comparison of low, normal, and high achievers. *Child Neuropsychology, 16*(5), 461-477.

Heine, A., Thaler, V., Tamm, S., Hawelka, S., **Schneider, M.**, Torbeyns, J., et al. (2010). What the eyes already 'know': Using eye movement measurement to tap into children's implicit numerical magnitude representations. *Infant and Child Development, 19*(2), 175-186.

Schneider, M., & Stern, E. (2010). The developmental relations between conceptual and procedural knowledge: A multimethod approach. *Developmental Psychology, 46*(1), 178-192.

De Smedt, B., Ansari, D., Grabner, R. H., Hannula, M. M., **Schneider, M.**, & Verschaffel, L. (2010). Cognitive neuroscience meets mathematics education. *Educational Research Review, 5*(1), 97-105.

Schneider, M., Grabner, R. H., & Paetsch, J. (2009). Mental number line, number line estimation, and mathematical achievement: Their interrelations in grades 5 and 6. *Journal of Educational Psychology, 101*(2), 359-372.

Schneider, M., & Stern, E. (2009). The inverse relation of addition and subtraction: A knowledge integration perspective. *Mathematical Thinking and Learning, 11*(1), 92-101.

Schneider, M., Heine, A., Thaler, V., Torbeyns, J., De Smedt, B., Verschaffel, L., Jacobs, A., & Stern, E. (2008). A validation of eye movements as a measure of elementary school children's developing number sense. *Cognitive Development, 23*(3), 424-437.

Hardy, I., **Schneider, M.**, Jonen, A., Stern, E., & Möller, K. (2005). Fostering diagrammatic reasoning in science education. *Swiss Journal of Psychology, 64*(3), 207-217.

Book Chapters

Schneider, M., & Flaig, M. (in press). Hochschuldidaktik. In D. H. Rost, J. Sparfeld, & S. Buch (Eds.), *Handwörterbuch Pädagogische Psychologie* (5th ed.). Weinheim: Beltz.

Rittle-Johnson, B., & **Schneider, M.** (2015). Developing conceptual and procedural knowledge in mathematics. In R. Cohen Kadosh & A. Dowker (Eds.), *Oxford handbook of numerical cognition* (pp. 1102-1118). Oxford, UK: Oxford University Press. doi: 10.1093/oxfordhb/9780199642342.013.014

Schneider, M., & Mustafić, M. (2015). Hochschuldidaktik als quantitativ-empirische Wissenschaft. In M. Schneider, Maida Mustafić (eds.), *Gute Hochschullehre: Eine evidenzbasierte Orientierungshilfe* (pp. 1-12). Heidelberg: Springer. doi: 10.1007/978-3-662-45062-8_1

Schneider, M., & Grabner, R. H. (2012). Fact learning. In N. M. Seel (Ed.), *Encyclopedia of the sciences of learning*. New York: Springer.

Schneider, M. (2012). Knowledge integration. In N. M. Seel (Ed.), *Encyclopedia of the sciences of learning*. New York: Springer.

Schneider, M., Vamvakoussi, X., & van Dooren, W. (2012). Conceptual change. In N. M. Seel (Ed.), *Encyclopedia of the sciences of learning*. New York: Springer.

Schneider, M., & Stern, E. (2010). The cognitive perspective on learning: Ten cornerstone findings. In Organisation for Economic Co-Operation and Development (OECD) (Ed.), *The nature of learning: Using research to inspire practice* (pp. 69-90). Paris: OECD.

Schneider, M., Rode, C., & Stern, E. (2010). Secondary school students' availability and activation of diagrammatic strategies for learning from texts. In L. Verschaffel, E. de Corte, T. de Jong, J. Elen (Eds.), *Use of external representations in reasoning and problem solving* (EARLI Book Series) (pp. 112-130). London: Routledge.

Schneider, M., & Stern, E. (2007). Informationsverarbeitungsansätze der Entwicklungspsychologie. In M. Hasselhorn & W. Schneider (Eds.), *Handbuch der Entwicklungspsychologie* (pp. 26-37). Göttingen: Hogrefe.

Stern, E., Felbrich, A., & **Schneider, M.** (2006, 2010). Mathematik lernen. In D. H. Rost (Ed.), *Handwörterbuch Pädagogische Psychologie* (3rd & 4th ed.) (pp. 521-529). Weinheim: Beltz.

Invited Talks

Schneider, M. (2014, February). *Konzeptwandel als Problem und als Chance naturwissenschaftlichen Unterrichts*. Keynote lecture at the Annual Spring School Biology Education, University of Trier, Germany.

Schneider, M. (2013, October). *Fractions: The new frontier for theories of numerical development?* Talk given at the workshop Development of numerical processing and language: From neurocognitive foundations to educational applications, University of Tübingen, Germany.

Schneider, M. (2013, August). *Kinder für das Leben stärken: Unterricht als Quelle von Kompetenz*. Eröffnungsvortrag auf der Schulanfangstagung Grundschule, Bremen, Germany.

Schneider, M. (2012, October). *Assessing conceptual and procedural knowledge of mathematics*. Invited lecture at the Faculty of Language and Literature, Humanities, Arts and Education (FLSHASE), University of Luxembourg, Luxembourg.

Schneider, M. (2010, September). *Knowledge integration in arithmetic learning*. Discussant talk given at the EARLI Advanced Study Colloquium on mathematical inversion, University of Leuven, Belgium.

Schneider, M. (2009, May). *The cognitive perspective on learning: Ten cornerstone findings.* Präsentation auf dem Expertentreffen des Projektes Innovative Learning Environments der OECD, Weimar, Germany.

Schneider, M. (2006, November). *Conceptual and procedural knowledge as latent variables: Their interaction during learning about decimal fractions*. Präsentation in der Developmental Discussion Group, Carnegie Mellon University, Pittsburgh, USA.

Schneider, M. (2006, May). *Conceptual and procedural knowledge about a mathematics problem: Their measurement and their causal interrelations*. Präsentation im Forschungsseminar des Center for Instructional Psychology and Technnology, University of Leuven, Belgiun.

Schneider, M. (2005, January). *Psychologische Lerntheorien: Aktuelle Entwicklungen und ihre Ursprünge*. Walther-Rathenau-Oberschule, Berlin, Germany.

Kunter, M., & Schneider, M. (2003, June). *Der Pisa-Schock und die Folgen*. Gymnasium Bondenwald, Hamburg, Germany.

Schneider, M. (2002, July). *Die PISA-Studie: Ihre Konzeption und die wichtigsten Ergebnisse*. Deutsche SchülerAkademie, Standort Veckenstedt, Germany.

Contributions to Conferences (Examples)

Schneider, M. (2015, August). *Stimulating young children's mathematical competencies via numeracy games*. Discussant talk given at the 16th conference of the European Association for Research on Learning and Instruction (EARLI), Limassol, Cyprus.

Schneider, M., & Torbeyns, J. (2015, August). *Advances in Research on Fraction Learning: From Cognitive Processes to Mathematical Achievement*. Symposium organized for the 16th conference of the European Association for Research on Learning and Instruction (EARLI), Limassol, Cyprus.

Schneider, M., Torbeyns, J., & Siegler, R. S. (2015, August). *Fraction magnitude understanding is central to mathematical achievement in three countries*. Paper presented at the 16th conference of the European Association for Research on Learning and Instruction (EARLI), Limassol, Cyprus.

Schneider, M., Martin, R., Ugen, S. (2015, August). *The number line estimation task as a diagnostic tool*. Paper presented at the 16th conference of the European Association for Research on Learning and Instruction (EARLI), Limassol, Cyprus.

Schneider, M. (2014, October). The Catch-the-Monster Game for improving the mental representation of numerical magnitudes. Paper presented at the Conference on Domain-specific Serious Games, University of Leuven, Belgium.

Schneider, M. (2013, August). *Methods for Research on Conceptual Change: Recent Advances and Future Challenges*. Symposium organized for the 15th conference of the European Association for Research on Learning and Instruction (EARLI), Munich, Germany.

Schneider, M. (2013, August). *The co-existence of naïve and scientific concepts in learning and development*. Symposium organized for the Annual Meeting of the Cognitive Science Society, Berlin, Germany.

Schneider, M. (2010, June). *Individual differences in the construction of knowledge about evolution*. Discussant talk at the symposium Modern Biology Goes to School, Zurich, Switzerland.

Schneider, M., & Hardy, I., (2010, May). *Towards a cognitive constructivist model of conceptual change*. Paper presented at the 7th Meeting of the EARLI Special Interest Group on Conceptual Change. Leuven, Belgium.

Schneider, M. (2010, May). *The cognitive perspective on learning*. Paper presented at the Annual Meeting of the American Educational Research Association (AERA), Denver, USA.

Schneider, M., & Rittle-Johnson, B. (2009, August). *Acquiring mathematical competence: The roles of conceptual and procedural knowledge*. Symposium organized for the 13th conference of the European Association for Research on Learning and Instruction (EARLI), Amsterdam, Netherlands.

Schneider, M., Rittle-Johnson, B., & Star, J. (2009, August). *Conceptual Knowledge, Procedural Knowledge and Procedural Flexibility in Mathematics: The Need for Valid Measures*. Paper presented at the 13th conference of the European Association for Research on Learning and Instruction (EARLI), Amsterdam, Netherlands.

Schneider, M., & Siegler, R. S. (2009, August). *The mental representation of fractions: Relations to individual differences in arithmetic competence and math achievement*. Paper presented at the 13th conference of the European Association for Research on Learning and Instruction (EARLI), Amsterdam, Netherlands.

Schneider, M. (2009, August). *Strategy flexibility in elementary mathematics: The use of clever shortcut strategies*. Discussant talk given at the 13th conference of the European Association for Research on Learning and Instruction (EARLI), Amsterdam, Netherlands.

Schneider, M., & Stern, E. (2008, July). *Validating a test of general reasoning ability adequate for the inclusion in SOEP.* Paper presented at the 29th International Congress of Psychology (ICP), Berlin, Germany.

Trier, March 9, 2016 Michael Schneider