



Is your mind set? Conceptual and methodological extensions of mindset research

E-CER founding date: 1st of January 2024

E-CER Scope:

Mindsets include beliefs about attributes or abilities, such as the malleability of abilities or the relevance of abilities for achievement. Mindsets build a 'meaning system' that plays a crucial role in learning by influencing motivation, emotions, learning behaviour, and goal setting, which ultimately impact achievement. While previous research has primarily focused on mindsets about intelligence, there is growing interest in examining domain- or subject-specific mindsets due to their predictive power for domain-specific behaviour. Although mindsets are generally stable, interventions can change them, providing opportunities to foster adaptive mindsets. However, the relationship between mindsets and learning outcomes varies across domains, populations, and cultures. Additionally, evidence suggests that mindset interventions might be particularly effective for academically at-risk students.

The E-CER aims to bring together these different perspectives to develop a comprehensive framework for conceptualising, analysing, and promoting different mindsets for different populations. The E-CER aims to advance our understanding of mindsets by developing new assessment tools, designing tailored mindset interventions, and developing resources to support the implementation of mindset-oriented practices for students, parents, and teachers.

First, we will engage in in-depth discussions to synthesise and analyse current mindset research to further develop mindset theory with respect to different domains, age groups, contexts, perspectives, and outcomes.

Secondly, we will discuss and develop mindset assessment instruments for different abilities. Particular attention will be paid to instruments not relying solely on self-report measures, including new approaches such as neurophysiological or behavioural approaches. We aim to provide recommendations for a multi-method approach to the comprehensive assessment of mindsets.



Third, we will develop mindset interventions, working together to improve their effectiveness and contribute to developing new interventions and materials. We will generate relevant information to facilitate the development of tailored interventions.

To address these challenges, the E-CER brings together mindset researchers from across Europe, drawing on their expertise in teacher education, social and motivational psychology, cognitive and learning sciences, developmental psychology, cross-cultural research, instrument development, and interaction research. This initiative will be the starting point for establishing a network of European researchers dedicated to mindset research.

E-CER Members:

1. Silke Hertel

Silke Hertel is a Professor of Personal Competencies in School Contexts at Heidelberg University, Germany. Her research is centered on the development and support of self-regulated learning, parental co-regulation, teachers' professional competencies, the design of adaptive learning environments, and mindsets. She teaches in both the Bachelor's and Master's programs in Education Science and in the Teacher Education program at the Institute of Education Science. Alongside Yves Karlen, she has co-edited the special issue titled 'The Power of Implicit Theories for Learning in Different Educational Contexts,' published in both *Frontiers in Education* and *Frontiers in Psychology* and developed scales to assess mindsets about self-regulated learning.

2. Yves Karlen

Yves Karlen is Professor of Upper Secondary Education with Special Focus on Research on Teaching and Learning at the University of Zurich. His research focuses on examining self-regulated learning (SRL) skills of teachers and students, developing diagnostic tools for SRL, and investigating how mindsets affect learning and teaching. He is particularly interested in supporting schools and teachers to develop their professional competences and practices through research-practice partnerships. The aim is to empower teachers to support students to become self-regulated and confident lifelong learners.

3. Miriam Compagnoni

Dr. Miriam Compagnoni is a growth-minded Senior Researcher and Lecturer at the University of Zurich. Her research centers on the interaction of mindsets, self-concepts, and self-regulation, spanning from early childhood to teacher education. At present, she is particularly interested in exploring teachers' mindsets regarding professional competencies and socio-emotional skills. With a commitment to bridging theory and practice, she actively contributes to educational practices by designing a mindset intervention with Prof. Dr. Yves Karlen to reduce stereotypical career choices for girls. She teaches in both the Bachelor's and Master's programs in Education Science at the University of Zurich, as well as in the Art Education program at the Zurich University of the Arts, focusing on the transformative power of mindsets.

4. Veronica Job

Veronika Job is Professor of Motivation Psychology at the University of Vienna. Much of her research is focused on determinants, processes, and outcomes of goal-striving, self-regulation, and effort mobilization. Veronika Job linked ego-depletion research with the lay theory approach by showing that the way people think about acts of self-control (as consuming from a limited vs. as a non-limited resource) affects their self-regulation ability and their personal goal striving. Her work contributes to a revised, critical view of the resource model of self-control.

5. Manu Kapur

Manu holds the Professorship for Learning Sciences and Higher Education at ETH Zurich, Switzerland, and directs The Future Learning Initiative (FLI) at ETH Zurich. As a learning scientist, Manu makes a commitment not only to advancing understanding of human learning, but doing so in ways that make an impact in the actual ecologies of learning. Drawing on his engineering mindset for design, Manu conceptualized and developed the theory of Productive Failure to design for and bootstrap failure for learning mathematics better. He has done extensive work in real-field ecologies of STEM classrooms to transform teaching and learning using his theory of productive failure across a range of schools and universities in around the world.

6. Fidelia Law

Fidelia Law is a Lecturer at the University of Bristol in the United Kingdom. She teaches in both the Bachelor's and Master's in Psychology of Education programs at the School of Education. Her research broadly tackles issues related to inequality in education. She uses quantitative, qualitative, and mixed-method research to explore the development of gender stereotypes, motivation, and engagement in STEM disciplines (science, technology, engineering, and mathematics). She collaborates closely with informal STEM practitioners at informal sites such as science centers and museums. Her involvement in implementing growth mindset interventions in informal learning environments demonstrates a commitment to research-practice partnerships, ensuring that research effectively bridges the gap between theory and real-world applications.

7. Marko Lüftenegger

Marko Lüftenegger is Associate Professor of Developmental and Educational Psychology in School Age at the University of Vienna, Austria. His main research focus is to identify

malleable characteristics in educational settings as these contribute to beneficial development of motivational, cognitive, and socio-emotional student outcomes. He also develops and evaluate trainings and programs. In this more applied research, both theoretical knowledge and empirical knowledge are used to develop evidence-based programs for teachers, students and parents. He has edited a special issue on 'Implicit theories: International Perspectives from Multiple Domains,' published in the Zeitschrift für Psychologie.

8. Maren Stern

Maren Stern is an interim Professor of Educational Psychology at LMU Munich, Germany. Her research interests include co- and self-regulatory processes, parent-child interactions, and mindsets in the educational context. Specifically, her work delves into cognitive learning processes, metacognitive strategies, and the promotion of self-regulated learning. In her research, she specializes in understanding how individuals regulate their learning and the impact of mindset on learning-related outcomes.

9. Kirsi Tirri

Kirsi Tirri is Professor of Education at the Department of Education, University of Helsinki. She is also a visiting Professor at St. John's University, New York. Her research interests include school pedagogy, moral and religious education, gifted education, teacher education, and cross-cultural studies. She leads the multidisciplinary research project on students', teachers', and parents' mindsets "Changing Mindsets about Learning: Connecting Psychological, Educational, and Neuroscientific Evidence (CoPErNicus)". She has published 14 monographs and numerous journal articles in international journals and book chapters. She has supervised 32 doctoral dissertations and mentored many postdoctoral researchers who are now professors and researchers in education.

10. Mark Winterbottom

Mark Winterbottom is a Professor of Education at the Faculty of Education, University of Cambridge. Mark's research interests are in science and biology education, both inside and outside the classroom, heritage education, inquiry-based education, teacher education, and classroom environment (with a current focus on air quality as part of the TAPAS network and CO-TRACE and SAMHE projects). He has a large group of PhD students, researching diverse aspects of science education, in both formal and informal contexts, and has been an active participant in the Cambridge-Africa Partnership for Research Excellence.