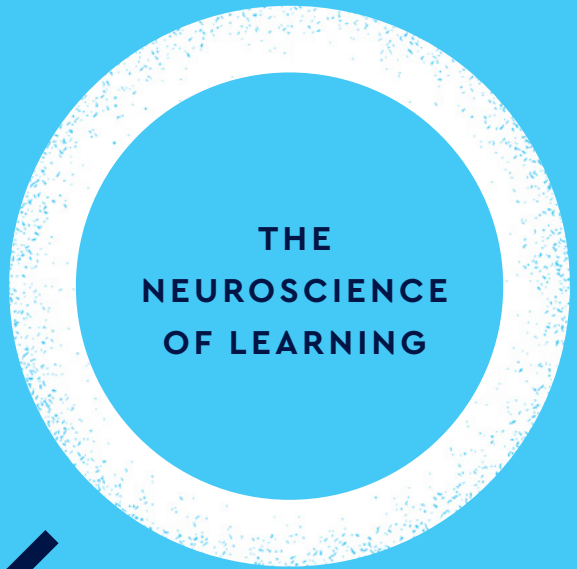




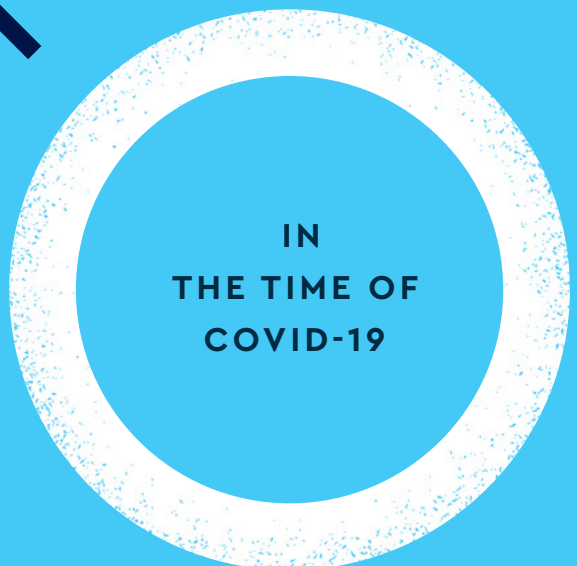
*learning series*



**THE  
NEUROSCIENCE  
OF LEARNING**



**RELEVANCE  
AND  
PROSPECTS**



**IN  
THE TIME OF  
COVID-19**



United Nations  
Educational, Scientific and  
Cultural Organization



International Bureau  
of Education

Co-organized by the International Bureau of Education (IBE-UNESCO) and the International Brain Research Organization (IBRO), this event seeks to contribute to closing the gap between scientific knowledge on learning and its application to education policies and practice.

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Friday, 4 December 2020  
4:00–5:30 PM CET (Geneva)

**Location**  
Online (Zoom meetings)

**Registration**  
<https://bit.ly/3998Y9g>

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**Time zone reference:**

4:00 PM, Central European Time (CET)

10:00 AM Eastern Standard Time (EST)

7:00 AM Pacific Standard Time (PST)

# PROGRAM

## 4:00–4.10 pm

### Welcome and opening remarks

**Yao Ydo**

Director a.i., UNESCO International Bureau of Education (IBE)

**Tasia Asakawa**

Director of Development and Communications, International Brain Research Organization (IBRO)

## 4.10–5.00 pm

### Panel presentations

#### The neuroscience of learning: Relevance and prospects in the time of COVID-19

**Moderator:**

**Grégoire Borst**

Paris Descartes, CPSC

#### *Stress in COVID-19 times: How can stress affect learning?*

**David Bueno**

University of Barcelona

#### *When staying home is not safe: Neural and behavioral correlates of child maltreatment*

**Donna Coch**

Dartmouth College

#### *Nutrition and the brain: The central role of education in promoting health for learning*

**Joel Talcott**

Aston Institute of Health and Neurodevelopment

## 5.00–5.10 pm

### Discussion

**Michael Thomas**

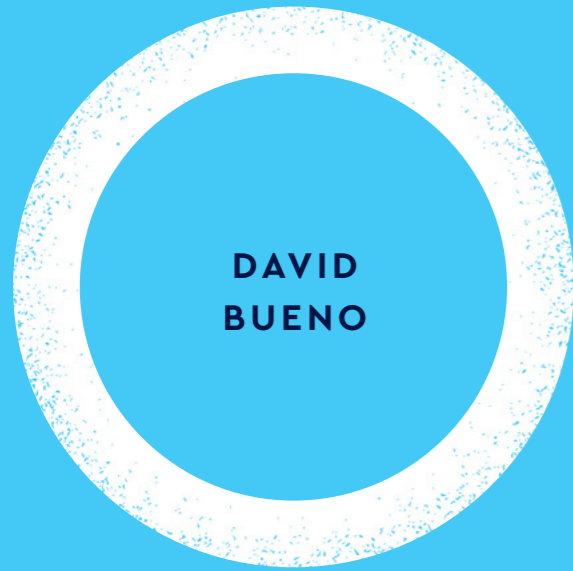
Birkbeck, University of London

## 5:10–5.30 pm

### Q & A with the audience

**Crystal Johnson**

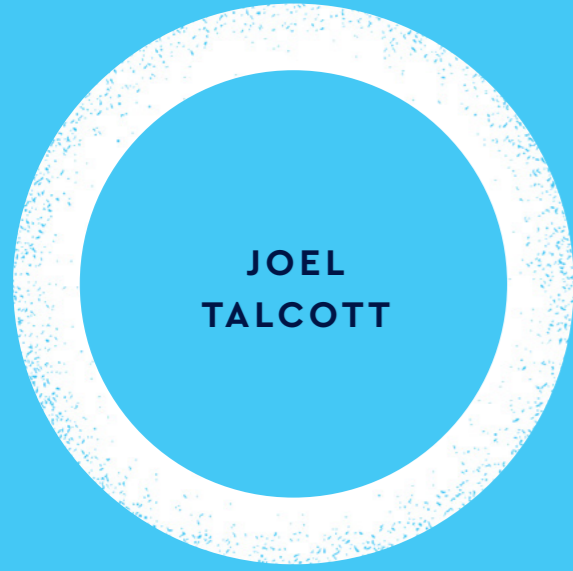
IBE & CCJ Consulting



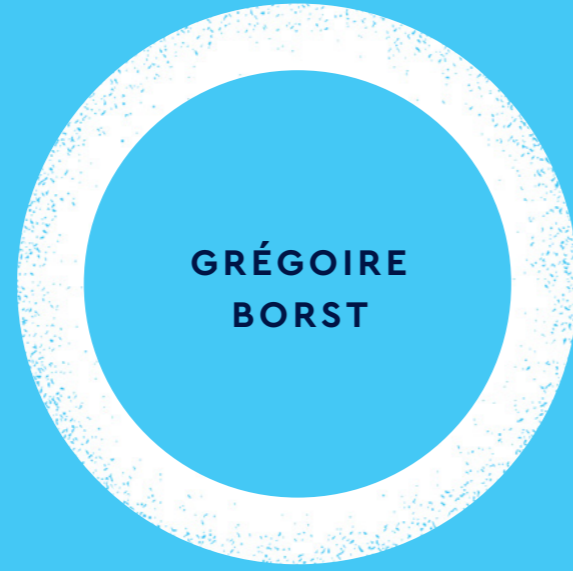
**DAVID  
BUENO**



**DONNA  
COCH**



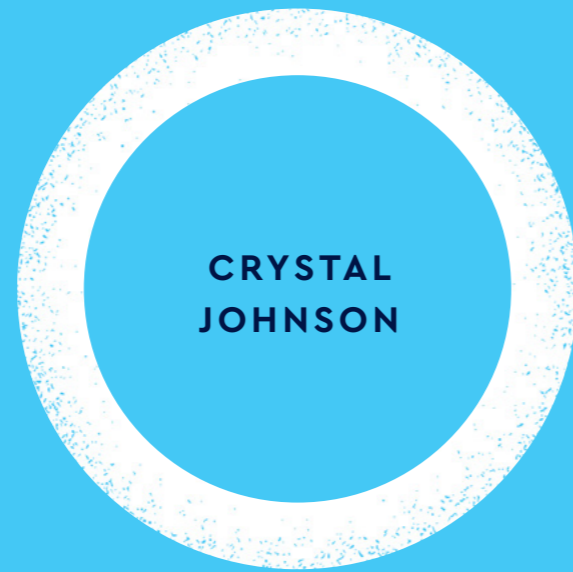
**JOEL  
TALCOTT**



**GRÉGOIRE  
BORST**



**MICHAEL  
THOMAS**



**CRYSTAL  
JOHNSON**

# ABOUT THE PANELISTS

## DAVID BUENO

is Chair of Neuroeducation at University of Barcelona (Chair of Neuroeducation UB-EDU1ST) and Lecturer of Genetics at the Biomedical, Evolutionary and Developmental Genetics Section at University of Barcelona. A specialist in genetics and neuroscience, he works on the use of neuroscientific data to understand educational processes and their consequences on behavior and so to improve learning systems, always focused in a balanced life. He has authored over 60 papers in peer review indexed international journals and 20 essay books (mostly in Catalan or Spanish). He was awarded in 2010 for his contributions to science dissemination (European Scientific Dissemination Award) and in 2018 for his contributions to neuroeducation (Premio Magisterio).

## DONNA COCH

is Professor in the Department of Education at Dartmouth College. She majored in Cognitive Science as an undergraduate at Vassar College, earned master's and doctoral degrees in Human Development and Psychology from Harvard University Graduate School of Education, and held a postdoctoral position at the University of Oregon Brain Development Lab. At Dartmouth, she supervises the undergraduate Reading Brains Lab. Using a noninvasive brain wave recording technique in combination with behavioral measures, her research focuses on what happens in the brain as different aspects of reading develop. Professor Coch teaches courses on education, learning, and development; the development of reading; atypical developmental pathways; disability in children's literature; and what works in education. A goal of both her research and her teaching is to make meaningful and useful connections across the fields of psychology, neuroscience, and education.

## JOEL TALCOTT

is Professor of Developmental Cognitive Neuroscience and Director of the Development and Learning Assessment Unit in the Aston Institute of Health and Neurodevelopment. His research centers on taxonomies of neurodevelopmental disorders, their multi-level manifestations through development and their implications on current assessment practice. He is past Head of the Department of Psychology, Associate Director of Research at Aston and currently serves as Editor of the research-practitioner journal *Dyslexia*.

## GRÉGOIRE BORST

is Professor of Developmental Psychology and Cognitive Neuroscience of Education at the University of Paris. He is the director of the Laboratory for the study of Child Development and Education (CNRS) at La Sorbonne and a junior member of the Institut Universitaire de France. His work focuses on the role of cognitive and emotional control on the cognitive and socio-emotional development of children and adolescents and on learning at school and in everyday life. He has published more than 70 scientific articles and 6 books including two for children to explain the basics of the brain and the mind.

# ABOUT THE PANELISTS

## MICHAEL THOMAS

is Professor of Cognitive Neuroscience at Birkbeck, University of London, and Director of the Centre for Educational Neuroscience. His primary interests are in cognitive and language development, both in terms of developmental processes in children and in the final cognitive structures they produce in the adult. He currently leads the Developmental Neurocognition lab, as part of Birkbeck's Centre for Brain and Cognitive Development.

## CRYSTAL JOHNSON

is Managing Director and Founder of CCJ Consulting, which aims to help nonprofits and foundations serve students, teachers, and the wider educational community. She is an experienced educator and nonprofit professional with more than twenty years of service to the Grade K-16 educational community. Crystal has worked closely with the IBE, to support the work of the IBRO/IBE Senior Fellows (2020 cohort).



# CONCEPT

## **Brain science, education, and learning: Making connections**

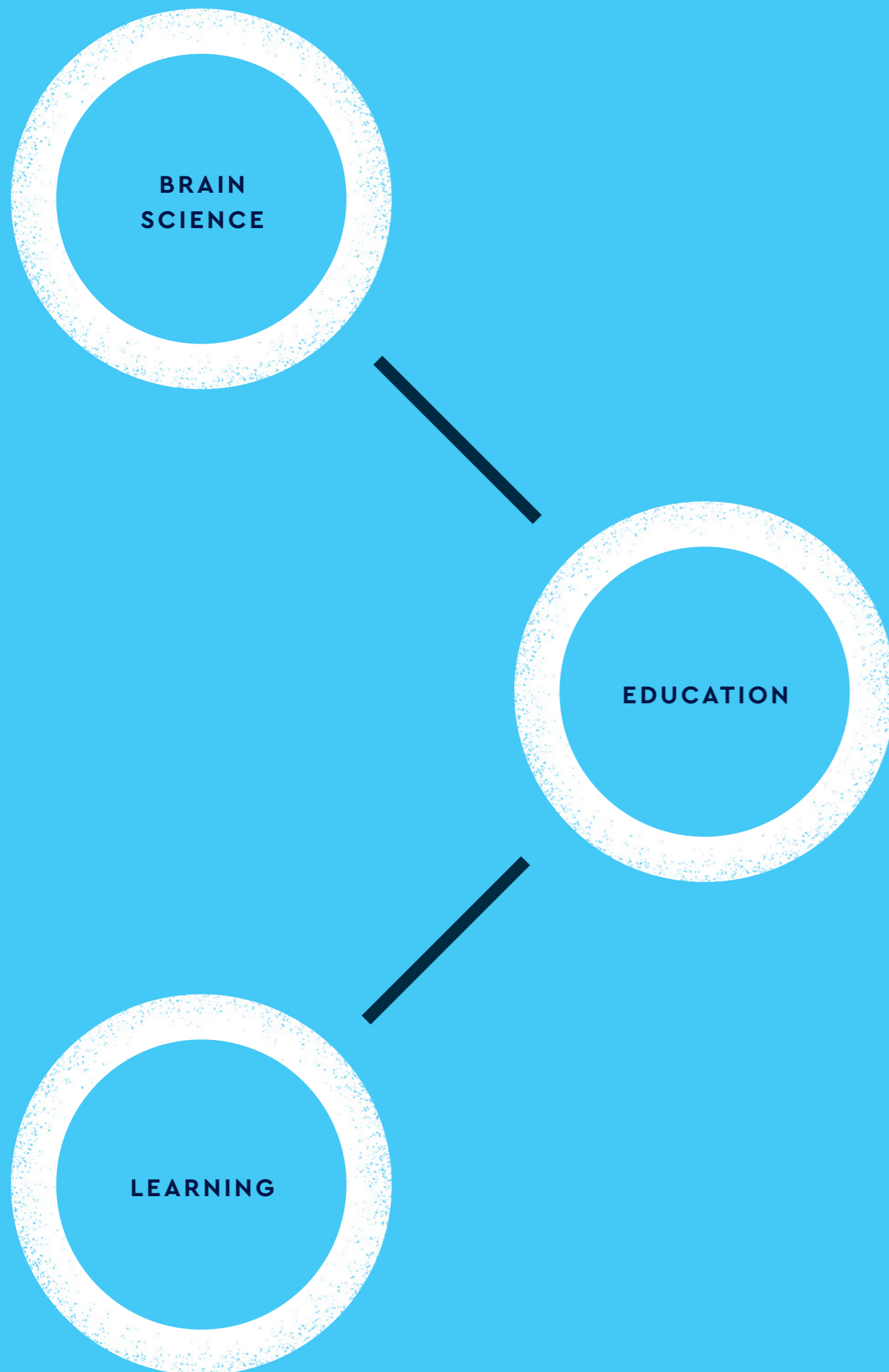
A scientific groundwork for education and learning has the potential to revolutionize the current understanding of learning and to provide an expanded, updated, and potentially useful toolkit to shape educational practice and policy. To effectively envision and guide critical improvements and reforms, policy makers, practitioners, and researchers need to be fully cognizant of this momentous dialogue between education and the science of learning.

## **Renewed relevance for the neuroscience of learning**

This dialogue is now more relevant than ever. Besides leading to an extraordinary global health and economic crisis, the COVID-19 pandemic has led to unprecedented educational disruptions, with unprecedented government responses (UN 2020, UNESCO 2020, World Bank 2020). As catastrophic as it is, the COVID-19 pandemic offers a moment of reflection. We're gaining some keen insights into how both education systems and students' learning have been working, or not working, and a picture is emerging of what needs to change. These insights have to be set with an understanding of a major crisis the world was facing before the pandemic: the learning crisis.

One of the most remarkable effects of the pandemic has been the mass closure of physical schools, the impact of which has been felt by students, caregivers, and educators globally.

In addition to the virus itself, the great suffering of this pandemic has been isolation and loneliness, which are harming health and social and material wellbeing of children worldwide. School closures, social distancing, and confinement may increase the risk of poor nutrition among children



and their exposure to domestic violence, increase their anxiety and stress, and reduce access to vital family and care services. To a varying extent, these issues intersect with income poverty and poor housing, with the common denominator being that children in poorer families are more exposed (OECD 2020).

In this complex context, the neuroscience of learning has two new responsibilities: first, to offer guidance about how best to deal with the impact of the current situation, including lockdown and homeschooling, and to propose some reliable advice for parents on mental health, and on becoming stand-in-teachers.

The second responsibility is to consider bigger questions about what this “large-scale educational experiment” might mean for the future (Thomas and Rogers 2020). This includes the potential negative impact of the COVID-19 crisis in increasing inequality and, with many students not being able to properly complete their school curriculum and assessment, in deepening the learning crisis; but also the potential positive impact of driving innovations in technology use for learning and teaching.

Alongside the many new challenges posed by the COVID-19 crisis is a somewhat familiar one: how to translate scientific evidence into education policy?

On a smaller scale, the neuroscience of learning faces the same challenge as before the COVID-19 crisis: How can a scientific understanding of teaching and learning inform the much broader canvas of education policy and educational practices? More specifically, how can the slow, cumulative knowledge built up through research translate to meet the needs of students, caregivers, and teachers?

## The IBRO/IBE Science of Learning initiative

The International Bureau of Education (IBE) is deeply involved with these issues, as it aims to improve access to evidence-based knowledge needed to guide curriculum design and development, and teaching, learning, and assessment within the demands of the global Education 2030 agenda.

For the past five years, the IBE has strengthened its efforts to explore the untapped potential of the science of learning to transform education and learning, including a solid partnership with the International Brain Research Organization (IBRO), to support and translate key neuroscience research on learning and the brain for educators, policy makers, and practitioners. The IBRO/ IBE initiative continues to attract leading senior neuroscientists, who review, synthesize, and rearticulate extensive neuroscientific research findings into accessible technical briefs, with clear implications for education policy and practice.

This is the fifth cohort of Senior Fellows, working closely with the IBE staff, to explore how current problems and needs in education can drive new directions for neuroscience research, and how neuroscience can feed into educational thinking, policy, and practice.

## References

OECD (2020). *Combating COVID-19's effect on children*. Policy responses to Coronavirus (COVID-19) series. Paris: OECD.

Thomas, M.S.C., & Rogers, C. (2020). Education, the science of learning, and the COVID-19 crisis. *Prospects*, 49, 87–90.

UN [United Nations] (2020). *Education during COVID-19 and beyond*. Policy brief. New York, NY: UN.

UNESCO (2020). *Education: From disruption to recovery*. Paris: UNESCO. <https://en.unesco.org/covid19/educationresponse>

World Bank (2020). *The COVID-19 pandemic: Shocks to education and policy responses*. Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/33696>

# OBJECTIVES OF THE WEBINAR

This is, therefore, a particularly opportune time for the IBE to organize this special Learning Series session, which brings together leading scholars from neuroscience, cognitive psychology, and education, for a sweeping discussion on the relevance and prospects of the neuroscience of learning during the COVID-19 crisis.

It is hoped that the webinar would provide:

- A broader understanding of the "learning brain", which, in turn, can provide an additional tool for educators and caregivers to facilitate students' learning and development.
- A basic grounding about how the brain learns, which promises to expand teachers' education, help them avoid various neuromyths, and empower them to approach their own practice more scientifically.
- A broader understanding of the many factors, within and beyond the classroom, which "sculpt" the unique brain of an individual learner, with direct implications for education policy makers and practitioners.
- A glimpse at new discoveries about the basic mechanisms of learning that can begin to inform, in an authentic manner, curriculum, education policy and everyday practices of teaching and learning.
- An overview of new dimensions that have not traditionally or explicitly been linked to classroom learning, such as emotion, and underlying environmental, evolutionary, and biological variables—all factors that are both potential constraints and potential springboards for acquiring human learning and knowledge.

## Participation

The webinar will take place on 4 December 2020, at:

4:00 PM, Central European Time (CET)  
10:00 AM Eastern Standard Time (EST)  
7:00 AM Pacific Standard Time (PST)

The webinar is open to all interested stakeholders, including, but not limited to: staff from international organizations and other agencies working on the education response to COVID-19; ministers of education; curriculum specialists; educators; etc.

A special invitation is extended to the Permanent Missions to the United Nations Office at Geneva (UNOG); UNESCO HQ and Field Offices staff; and UNESCO National Commissions.

## Technical platform and interpretation

The webinar will be held in English with simultaneous interpretation to French, conducted through the Zoom webinar platform.

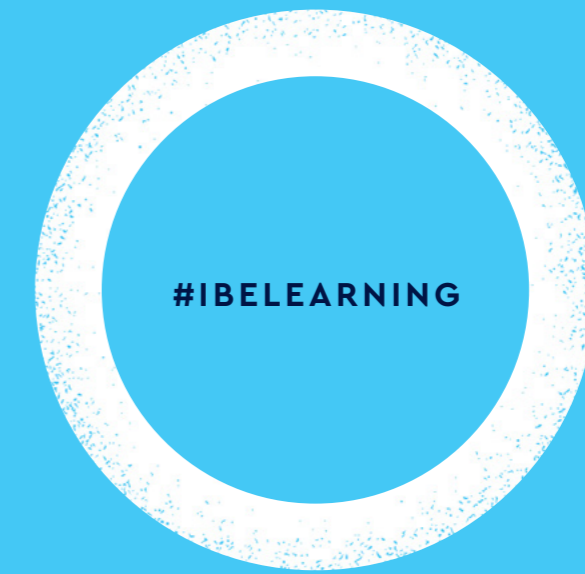
**Interested participants should register by 4 December through this form:**

<https://bit.ly/3998Y9g>

## Contact information

**Simona Popa**  
IBE Program Specialist

[s.popa@unesco.org](mailto:s.popa@unesco.org)



#IBELEARNING



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A world where each and every person is assured quality education and relevant lifelong learning.

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THE IBE VISION



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