Session Wed 18, 09:30 - 11:00:**1** | Time: 09:30-11:00 | Location: Sala polivalent 1

SINGLE PAPER: EYE-TRACKING

Chair
Bernadette Charlier, University of Fribourg, Switzerland

Feedback Engagement and Nudging: An Eye-Tracking based Cued Retrospective Recall Interview Study
Roselyne Willems, Universiteit Antwerpen - FWO, Belgium; Jonas Willems, University of Antwerp, Belgium; Stijn Schelfhout, Ghent University, Belgium; Vincent Donche, University of Antwerp, Belgium

Children's Navigation Strategies in Multiple Document Reading: A Longitudinal Eye-tracking Study
Carolien Knoop-van Campen, Radboud University Nijmegen, Netherlands; Aurora Troncoso-Ruiz, Behavioural Science Institute, Radboud University Nijmegen, Netherlands; Siena Vergeer, Radboud University Nijmegen, Behavioural Science Institute, Netherlands; Marco van de Ven, Radboud University Nijmegen, Behavioural Science Institute, Netherlands; Eliane Segers, Radboud University, Netherlands

Digital Reading Intervention Effects on Cognitive Workload and Engagement
Mario Romero-Palau, University of Valencia, Spain; Clara Soberats, Center for Mind/Brain Sciences, Italy; Marta Vergara Martinez, Faculty of Psychology. University of Valencia, Spain; Ladislao Salmerón, University of Valencia, Spain

Beyond Structure: AI Extraction vs. Few-Shot to Assess Civic Argumentation
Andreas Emter, University of Potsdam, Germany; Christian Mayer, University of Mannheim, Germany; Nils-Jonathan Schaller, Leibniz Institute for Science and Mathematics Education at the University of Kiel, Germany; Christin Siegfried, University of Potsdam, Germany

Session Wed 18, 09:30 - 11:00:**2** | Time: 09:30-11:00 | Location: Amfiteatre

SYMPOSIUM: MAKING LEARNING PROCESSES VISIBLE AT SCALE

Chair
Crina Damsa, University of Oslo, Norway

Organiser
Bruno Poellhuber, University of Montreal, Canada

Discussant
Hanni Muukkonen, University of Oulu, Finland

A Log-Based Analysis of Student Engagement with an Intelligent Biology Tutor
Bruno Poellhuber, University of Montreal, Canada; Normand Roy, University of Montreal, Canada

Capturing Learning Processes at Scale: From the MEPA Method to YEPA AI
Bernadette Charlier, University of Fribourg, Switzerland; Joris Felder, Yllyl, Switzerland; Leonard Noth, Yllyl, Switzerland; Sandy Ingram, HES-SO, Switzerland; Morgane Nissille, Yllyl, Switzerland

Study trajectories in higher education: A longitudinal large-scale learning analytics approach
Andres Araos, University of Oslo - IPED, Norway; Crina Damsa, University of Oslo, Norway; Jan Arild Dolonen, university of Oslo, Norway; Rachelle Esterhazy, Oslo Metropolitan University, Norway; Asmaa Abusamra, Asmaa Abusamra, Norway; Anna Mavroudi, University of Oslo, Faculty of Education, Norway; Manuel Olivera Toro López, University of Oslo, Norway; Stefan Schauber, University of Oslo, Norway

Session Wed 18, 11:30 - 13:00:**1** | Time: 11:30-13:00 | Location: Amfiteatre

SINGLE PAPER: COLLABORATIVE LEARNING AND GENAI

Chair
Andy (Khanh Xuan) Nguyen, University of Oulu, Finland

Are We in Sync? Exploring Different Physiological Synchrony Measures in a Cooperative Task
Monika Donker, Utrecht University, Netherlands; Timo Kegelaar, Utrecht University, Netherlands; Ashley Xia, Utrecht University, Netherlands; Casper Sánta, Utrecht University, Netherlands; Julia van Nijhuis, Utrecht University, Netherlands; Tamara Van Gog, Utrecht University, Netherlands

Informal Generative AI Practices in Science Education: Patterns, Levels of Use, and Potential Impact
MEHEDI HASAN ANIK, Chalmers University of Technology, Sweden

Investigating emerging agentic behaviors with GenAI: Temporal network analysis
Anni silvola, University of Oulu, Finland; Hanni Muukkonen, University of Oulu, Finland; Anceli Kaveri, University of Oulu, Finland; Tiina Törmänen, University of Oulu, Finland; Joonas Merikko, University of Helsinki, Finland

Making Sense of Teamwork: Combining MMLA, AI Techniques and Qualitative Interpretation
Daniel Sanchez, University of Oslo, Norway; Crina Damsa, University of Oslo, Norway; Mariia Borisova, University of Oslo, Norway; Rogers Kaliisa, University of Oslo, Faculty of Education, Norway

Session Wed 18, 11:30 - 13:00:**2** | Time: 11:30-13:00 | Location: Sala polivalent 1

SINGLE PAPER: VIDEO DATA AND MULTIMODAL DATA

Chair
Charlotte Van Tricht, University of Antwerp, Belgium

Gaze and Proxemics as Signals of Shared Regulation in AI-Supported Collaborative Learning
Ridwan Whitehead, University of Oulu, Finland; Andy (Khanh Xuan) Nguyen, University of Oulu, Finland; Sanna Järvelä, University of Oulu, Finland

Investigating regulated learning in collaborative workplace teams
Niina Palmu, University of Oulu, Finland; Hanna Järvenoja, University of Oulu, Finland; Piet Van den Bossche, University of Antwerp, Belgium; Sanna Järvelä, University of Oulu, Finland

Collective Learning Through Sensemaking in Debriefs: A Multimodal Approach
Amber van Kampen, University of Twente, Netherlands; Marcella Hoogeboom, University of Twente, Netherlands; Maaike Endedijk, University of Twente, Netherlands

Tracing the Complexity of Movement Dynamics in VR Chemistry Lab Skill Learning
Megan Wiedbusch, University of Central Florida, United States; Roger Azevedo, University of Central Florida, United States

Session Wed 18, 11:30 - 13:00:**3** | Time: 11:30-13:00 | Location: Sala polivalent 2

SINGLE PAPER: ELECTRODERMAL ACTIVITY AND AROUSAL

Chair
Christian Mayer, University of Mannheim, Germany

Wordlist Sequencing in Learning Finnish Orthographic Synforms: A Multimodal Study
Héctor J. Pijeira-Díaz, University of Jyväskylä, Finland; Jobert Ngwenya, University of Jyväskylä, Finland; Slawomir Pryc, Åbo Akademi University, Finland; Anu Tourunen, University of Jyväskylä, Finland; Virpi-Liisa Kykyri, University of Jyväskylä, Finland

Electrodermal activity in learning and instruction research: A systematic literature review
Héctor J. Pijeira-Díaz, University of Jyväskylä, Finland; Lina María García Morales, University of Jyväskylä, Finland; Faisal Rehman Channa, University of Jyväskylä, Finland

What Happens in CL When Students' Motivation Changes? A Multimodal Analysis of Emotions
Jasmiina Suoraniemi, University of Oulu, Finland; Tiina Törmänen, University of Oulu, Finland; Hanna Järvenoja, University of Oulu, Finland

Session Wed 18, 15:00 - 16:30:**1** | Time: 15:00-16:30 | Location: Sala polivalent 2

NO- OR NOT-SO-PERFECT-DATA PRESENTATION: EYE-TRACKING AND LOG DATA

Chair
Enrique Arturo Vázquez Uscanga, Universidad Alberto Hurtado, Chile

Inside the Black Box of Feedback Engagement: The Role of Video Nudging—An Eye-Tracking and GSR study
Jonas Willems, University of Antwerp, Belgium; Roselyne Willems, Antwerp University, Belgium; Stijn Schelfhout, Ghent University, Belgium; Vincent Donche, University of Antwerp, Belgium

Detecting Moments of Curiosity within Game-based Learning Environments using Multimodal Trace Data
Megan Wiedbusch, University of Central Florida, United States; Milouni Patel, University of Central Florida, United States; Veeraraghava Raju Hasti, University of Central Florida, United States; Roger Azevedo, University of Central Florida, United States

A Case Study of Self-regulating (non) Learning in a Game-based Learning Environment
Megan Wiedbusch, University of Central Florida, United States; Roger Azevedo, University of Central Florida, United States; Cameron Marano, University of Central Florida, United States; Veeraraghava Raju Hasti, University of Central Florida, United States; Michelle Taub, University of Central Florida, United States

Single Paper: Learning Under Evaluation: Multimodal Process Measures of Learning Dynamics
Victoria Prokofieva Nelson, Université Paris Nanterre, France; Fabien Fenouillet, Université Paris Nanterre, France

ANNOTATIONS:
THIS SESSION ALSO INCLUDES A SINGLE PAPER PRESENTATION.

Session Wed 18, 15:00 - 16:30:**2** | Time: 15:00-16:30 | Location: Sala polivalent 1

NO- OR NOT-SO-PERFECT-DATA PRESENTATION: ARTIFICIAL INTELLIGENCE AND TRACE DATA

Chair
Kateryna Horlenko, Vytautas Magnus University, Lithuania

Nudging feedback: attention to self-efficacy (mis)alignment for more behavioral feedback engagement
Charlotte Van Tricht, University of Antwerp, Belgium; David Gijbels, University of Antwerp, Belgium; Vincent Donche, University of Antwerp, Belgium

Tracing inferential engagement in AI-mediated digital reading: A process-oriented study
Chiara Magurno, Università Modena e Reggio Emilia, Italy; Chiara Bertolini, Università degli studi di Modena e Reggio Emilia - Department of Education adn Human Sciences, Italy

Shared Hybrid Intelligent Regulation of Collaborative Learning (SHIRCL) Model
Andy (Khanh Xuan) Nguyen, University of Oulu, Finland; Belle Dang, Victorial University of Wellington, New Zealand; Thu Duong, University of Oulu, Finland; Luna (Thi Thu Nguyet) Huynh, University of Oulu, Finland

Writing Processes and GenAI Feedback in Postsecondary Writing Instruction and Assessment
John Sabatini, The University of Memphis, United States; Katherine Fredlund, The University of Memphis, United States; Elliott Casal, The University of Memphis, United States; Ben Pierce, The University of Memphis, United States; Paul Deane, Independent Researcher, United States

Session Wed 18, 15:00 - 16:30:**3** | Time: 15:00-16:30 | Location: Amfiteatre

SYMPOSIUM: WHEN SENSORS AND AI MEET PEDAGOGY: TOWARDS GROUNDED AND INTERPRETABLE MULTIMODAL LEARNING ANALYTICS

Chair
Rogers Kaliisa, University of Oslo, Faculty of Education, Norway

Organiser
Crina Damsa, University of Oslo, Norway

Discussant
Margarida Romero, Université Côte d'Azur, France

A Framework to Mix Human and Artificial Intelligence to Build Multimodal Learning Analytics Systems
Xavier Ochoa, New York University, United States; Xiaomeng Huang, New York University, United States

Using Multimodal Learning Analytics and AI to foster a Pathway to create Insights in the Classrooms
Thomas Frøsig, Université Côte d'Azur, France

When Machines Observe Learning, What Do They Reveal About Us?
Daniel Spikol, University of Copenhagen, Denmark; Morten Misfeldt, University of Copenhagen, Denmark

Session Wed 18, 16:30 - 18:00:**1** | Time: 16:30-18:00 | Location: Sala polivalent 1

POSTER PRESENTATION: POSTERS A

Chair
Francesca Zermiani, University of Valencia, Spain

Forecasting Collaborative Breakdowns: Toward Proactive Dyadic Adaptation in Pair Programming
anahita golrang, Norwegian University of Science and Technology (NTNU), Norway; Kshitij Sharma, Norwegian University of Science and Technology (NTNU), Norway

From Eye Movements to Teacher Insights: Designing AI Support for Reading
Siem Buseyne, Universiteit Antwerpen, Belgium; Glen Joris, University of Antwerp, Belgium; Konstantinos Tsiakis, Open Universiteit, Netherlands; Tine van Daal, University of Antwerp, Belgium; Vincent Donche, University of Antwerp, Belgium; Sven De Maeyer, Antwerp University, Belgium; Leen Catrysse, Open Universiteit Nederland, Netherlands; Halszka Maria Jarodzka, Open Universiteit, Department of Online Learning and Instruction, Netherlands; David Gijbels, University of Antwerp, Belgium

Classroom eye-tracking study on teacher professional vision for self-regulated learning
Kateryna Horlenko, Vytautas Magnus University, Lithuania; Lina Kaminskienė, Vytautas Magnus University, Lithuania; Erno Lehtinen, University of Turku, Finland

Towards a cost-efficient open-source infrastructure for physiological multimodal learning analytics
Thomas Frøsig, Université Côte d'Azur, France; Margarida Romero, Université Côte d'Azur, Nice, France

Research Plans for Online Motivation-Tailored Support in Higher Education
Bo Matton, University of Antwerp, Belgium; David Gijbels, University of Antwerp, Belgium

Tracking the emergence of purposeful reading in children: an eye-tracking study in primary school.
Anaïs Deleuze, Université Grenoble Alpes, France; Mirjana Sestier, Université Grenoble Alpes, France; Jean-François Rouet, University of Poitiers - CNRS, France; Guillaume De Pereyra, Université de Poitiers, France; Anna Potocki, Université Grenoble Alpes, France

Eye tracking and machine learning: Predicting classroom activity based on teacher gaze
Senne Van Hoecke, Open Universiteit, Netherlands; Kshitij Sharma, Norwegian University of Science and Technology (NTNU), Norway

Session Thu 19, 09:00 - 10:30:**1** | Time: 09:00-10:30 | Location: Amfiteatre

NO- OR NOT-SO-PERFECT-DATA PRESENTATION: MULTIMODAL DATA

Chair
Tobias Deribo, DIPF | Leibniz Institute for Research and Information in Education, Germany

Exploring teacher orchestration load during collaborative scenarios using multimodal data
Thy Tran Khanh, KU Leuven, Centre for Instructional Psychology and -Technology (Vesaliusstraat 2, 3000 Leuven), Belgium; Annelies Raes, KU Leuven, Belgium; Ginette Lafit, KU Leuven, Belgium

Real-time Finnish compound learning: Effects of wordlist sequencing strategies
Ishmael Kweku Forson, University of Jyväskylä, Finland; Heidi Layne, University of Jyväskylä, Finland; Héctor J. Pijeira-Díaz, University of Jyväskylä, Finland

Multimodal Collaborative Learning Processes in Mixed Reality
Andy (Khanh Xuan) Nguyen, University of Oulu, Finland; Boshra Najari, University of Oulu, Finland; Tam Le, University of Oulu, Finland; Thu Duong, University of Oulu, Finland; Mohammadamin Yamini, University of Oulu, Finland

Session Thu 19, 09:00 - 10:30:**2** | Time: 09:00-10:30 | Location: Sala polivalent 2

NO- OR NOT-SO-PERFECT-DATA PRESENTATION: PHYSIOLOGICAL AND MULTIMODAL DATA

Chair
Simon Tiffin-Richards, Leibniz Institute for Science and Mathematics Education (IPN), Germany

Do Physiological Challenge/Threat States Affect Learning from Debiasing Instructions in Reasoning?
Florence Lucas, Utrecht University, Netherlands; Tamara Van Gog, Utrecht University, Netherlands; Eva Janssen, Utrecht University, Netherlands

Measuring Challenge/Threat: Validating a New Self-Report Instrument with Cardiovascular Measures
Florence Lucas, Utrecht University, Netherlands; Eva Janssen, Utrecht University, Netherlands; Denise Hom, Utrecht University, Netherlands; Tamara Van Gog, Utrecht University, Netherlands

Reimagining Learning Spaces: Imperfect Process Data on School Leaders in Immersive Classrooms
Marc-André Girard, Université du Québec à Montréal (UQAM), Canada

Noisy feelings: Multimodal measurement of academic emotions during AI-mediated learning
Tuisku Tammi, University of Helsinki, Finland; Elina E. Ketonen, University of Helsinki, Finland

Session Thu 19, 09:00 - 10:30:**3** | Time: 09:00-10:30 | Location: Sala polivalent 1

NO- OR NOT-SO-PERFECT-DATA PRESENTATION: (MULTIMODAL) LEARNING ANALYTICS

Chair
Saswati Chaudhuri, University of Jyväskylä, Finland

A large scale analytics project exploring first-year undergraduate students' dropout
Jan Arild Dolonen, University of Oslo, Norway; Crina Damsa, University of Oslo, Norway; Andres Araos, University of Oslo, Faculty of Education, Norway; Manuel Olivera Toro López, University of Oslo, Norway; Anna Mavroudi, University of Oslo, Faculty of Education, Norway; Rachelle Esterhazy, Oslo Metropolitan University, Norway; Asmaa Abusamra, Asmaa Abusamra, Norway; Stefan Schauber, University of Oslo, Norway

Pediatric Emergency team Leaders' Eye Movements During Simulation Training
Roger Azevedo, University of Central Florida, United States; Annamarie Brosnihan, University of Central Florida, United States; Megan Wiedbusch, University of Central Florida, United States; Lindsey Schulz, Nemours Children's Hospital, United States; Shiva Kalidindi, Nemours Children's Hospital, United States

Individual Antecedents of Behavioral Online Self-Assessment Feedback Engagement
Moira Decorte, Ghent University, Belgium; Wouter Duyck, Ghent University, Belgium; Nicolas Dirix, Ghent University, Belgium; Stijn Schelfhout, Ghent University, Belgium

Session Thu 19, 11:00 - 12:30:**1** | Time: 11:00-12:30 | Location: Sala polivalent 1

TUTORIAL: MULTIMODAL PROCESS RESEARCH

Combining Eye-Tracking, Video, and Verbal Data in Multimodal Process Research
Özün Keskin-Senkal, University of Augsburg, Germany

Session Thu 19, 11:00 - 12:30:**2**	Time: 11:00-12:30	Location: Amfiteatre

TUTORIAL: COMPUTATIONAL THINKING

Computational Thinking as a Method for Analyzing Collaborative Learning Processes with Python
Enrique Arturo Vázquez Uscanga, Universidad Alberto Hurtado, Chile

Session Thu 19, 11:00 - 12:30:**3**	Time: 11:00-12:30	Location: Sala polivalent 2

TUTORIAL: TRANSITION AND PATTERN ANALYSIS

Capturing the dynamics of learning processes with transition and pattern analysis
Mohammed Saqr, University of Eastern Finland, Finland; Kamila Misiejuk, CATALPA, FernUniversität in Hagen, Germany, Germany; Sonsoles López-Pernas, University of Eastern Finland, Finland

Session Thu 19, 14:45 - 16:15:**1**	Time: 14:45-16:15	Location: Sala polivalent 2

SINGLE PAPER: SELF-REGULATED LEARNING

Chair
Tam Le Hong, University of Oulu, Finland

Audience Effects on Psychophysiological Challenge/Threat Responses and Performance
Denise Hom, Utrecht University, Netherlands; Eva Janssen, Utrecht University, Netherlands; Florence Lucas, Utrecht University, Netherlands; Daan Scheepers, Utrecht University, Netherlands; Tamara Van Gog, Utrecht University, Netherlands

Motivational characteristics underlying temporal self-regulated learning profiles
Tiina Törmänen, University of Oulu, Finland; Anja Henke, University of Potsdam, Germany; Hanna Järvenoja, University of Oulu, Finland; Rebecca Lazarides, University of Potsdam, Germany

Multiple and Single Digital Document Comprehension: Time on Task as a Process Indicator
Simon Tiffin-Richards, Leibniz Institute for Science and Mathematics Education (IPN), Germany; Joyce Gubbels, Dutch Center for Language Education, Netherlands; Nicole Swart, Dutch Center for Language Education, Netherlands; Johannes Naumann, University of Wuppertal, Germany; Eliane Segers, Radboud University, Netherlands

Analysing SSRL from Video Data Using a Structured Agent-Based Approach
Hanna Järvenoja, University of Oulu, Finland; Xiaoyu Yuan, University of Oulu, Finland; Niklas Heikkala, University of Oulu, Finland; Guoying Zhao, University of Oulu, Finland; Haoyu Chen, University of Oulu, Finland

Session Thu 19, 14:45 - 16:15:**2**	Time: 14:45-16:15	Location: Sala polivalent 1

SINGLE PAPER: ARTIFICIAL INTELLIGENCE

Chair
Anni silvola, University of Oulu, Finland

Capturing Learning Processes at Scale: From the MEPA Method to YEPA AI
Bernadette Charlier, University of Fribourg, Switzerland; Joris Felder, Yllyl, Switzerland; Leonard Noth, Yllyl, Switzerland; Sandy Ingram, HES-SO, Switzerland; Morgane Nissile, Yllyl, Switzerland

A Log-Based Analysis of Student Engagement with an Intelligent Biology Tutor
Bruno Poellhuber, University of Montreal, Canada; Normand Roy, University of Montreal, Canada

Understanding High-order Human AI Interaction Processes with Higher-order Networks
Mohammed Saqr, University of Eastern Finland, Finland; Sonsoles López-Pernas, University of Eastern Finland, Finland; Kamila Misiejuk, CATALPA, FernUniversität in Hagen, Germany, Germany

Privacy Matters: An Adaptive AI Learning Agent for Conscious Data Sharing with AI Tools
Ellen De Bruyne, AP University of Applied Sciences and Arts Antwerp, Belgium; Wim Casteels, AP University of Applied Sciences and Arts, Belgium

Session Thu 19, 14:45 - 16:15:**3** | Time: 14:45-16:15 | Location: Amfiteatre

INVITED SYMPOSIUM (SIG 27 CONFERENCE 2026): SIG 16 INVITED SYMPOSIUM. EXPLORING MECHANISMS OF SELF-REGULATED LEARNING WITH MULTIMODAL DATA

Chairs
Emely Hoch, University of Zurich, Switzerland; Kateryna Zabolotna, University of Oulu, Finland, Finland; Madalin Deliu, University of Salamanca, Spain

Organisers
Emely Hoch, University of Zurich, Switzerland; Kateryna Zabolotna, University of Oulu, Finland, Finland; Madalin Deliu, University of Salamanca, Spain

Discussant
Tamara Van Gog, Utrecht University, Netherlands

Using Eye Tracking to Understand Multimedia Design Effects in Test Items
Emely Hoch, University of Zurich, Switzerland; Salome Flegr, Dresden University of Technology, Germany; Katharina Scheiter, University of Potsdam, Germany; Jochen Kuhn, Ludwig-Maximilians-Universität München, Germany; Jan-Philipp Burde, University of Tübingen, Germany; Marlit Annalena Lindner, Leibniz Institute for Science and Mathematics Education, Germany

Using Theory-Informed Learning Analytics to Understand How Homework Behavior Predicts Achievement
Hannah Deininger, University of Tübingen, Germany; Ines Pieronczyk, Hector Research Institute of Education Sciences and Psychology, Germany; Cora Parrisius, Karlsruhe University of Education, Germany; Robert Plumley, University of North Carolina at Chapel Hill, United States; Detmar Meurers, Leibniz Institute for Knowledge Media, Germany; Gjergji Kasneci, Technische Universitaet Muenchen, Germany; Benjamin Nagengast, Eberhard Karls Universität Tübingen, Germany; Ulrich Trautwein, University of Tübingen, Germany; Jeff Greene, University of North Carolina at Chapel Hill, United States; Matthew Bernacki, University of North Carolina at Chapel Hill, United States

Acoustic-Prosodic Entrainment During Collaborative Problem Engagement and Regulation of Learning
Martin Greisel, University of Augsburg, Germany; Kateryna Zabolotna, University of Oulu, Finland, Finland

Session Thu 19, 16:15 - 17:45:**1** | Time: 16:15-17:45 | Location: Sala polivalent 1

POSTER PRESENTATION: POSTERS B

Chair
Leonard Tetzlaff, German Institute for International Educational Research (DIPF), Centre for International Student Assessment (ZIB), Germany

Plan or Plunge? Forethought-Performance Profiles in an online computational thinking task
Tanya Chichekian, Université de Sherbrooke, Canada; Maria Cutumisu, McGill University, Canada; Annie Savard, McGill University, Canada; Yi-Mei Zhang, McGill University, Canada

Understanding Reading Comprehension Through Eye Movements and Cross-Linguistic Complexity
Francesca Zermiani, University of Valencia, Spain; Diane Mézière, University of Turku, Finland; Cristina Vargas Pecino, University of Valencia / Interdisciplinary Research Structure for Reading Research (ERI Lectura), Spain; Sini Hyvönen, University of Turku, Finland; Leen Catrysse, Open Universiteit Nederland, Netherlands; Johanna Kaakinen, University of Turku, Finland; Ladislao Salmerón, University of Valencia, Spain

Time Allocation as an Indicator of Learning and Solution Processes in Problem-Solving
Helena Feldhege, DIPF | Leibniz Institute for Research and Information in Education, Centre for International Student Assessment (ZIB), Germany; Leonard Tetzlaff, German Institute for International Educational Research (DIPF), Centre for International Student Assessment (ZIB), Germany; Carolin Hahnel, Ruhr University Bochum, DIPF | Leibniz Institute for Research and Information in Education, Germany; Ulf Kröhne, DIPF | Leibniz Institute for Research and Information in Education, Germany; Frank Goldhammer, DIPF | Leibniz Institute for Research and Information in Education, Centre for International Student Assessment (ZIB), Goethe University Frankfurt / Main, Germany

Assessing Divergent Thinking Through Structural Edit Distance in Creative Problem Solving
Zhanna Kazakpayeva, Université Côte d'Azur, France; Louis Köhler, Université Côte d'Azur, France; Patricia Reynaud-Bouret, Université Côte d'Azur, France; Margarida Romero, Université Côte d'Azur, France

Human-AI collaboration in problem-solving: effects of goal orientation on GenAI use in simulations
Christian Mayer, University of Mannheim, Germany; Josef Guggemos, University of Education Schwäbisch Gmünd, Germany; Gabriele Schneider, University of Mannheim, Germany; Andreas Rausch, University of Mannheim, Germany; Juergen Seifried, University of Mannheim, Germany

Navigating Complexity with GenAI: Problem-Solving Under Varying Task Demands in an Office Simulation
Gabriele Schneider, University of Mannheim, Germany; Andreas Rausch, University of Mannheim, Germany; Juergen Seifried, University of Mannheim, Germany; Christian Mayer, University of Mannheim, Germany

ANNOTATIONS:
POSTER "TRACING AI-ASSISTED SOCIAL REGULATION IN WRITING FOR PUBLICATION" WILL ALSO BE PRESENTED ON THIS SESSION.

Tracing AI-Assisted Social Regulation in Writing for Publication
Baraa Khuder, Chalmers Unviersity of Technology, Sweden; Raffaella Negretti, Chalmers University of Technology, Sweden

Session Fri 20, 09:00 - 10:30:**1** | Time: 09:00-10:30 | Location: Sala polivalent 1

SINGLE PAPER: LEARNING ANALYTICS

Chair
Kateryna Zabolotna, University of Oulu, Finland, Finland

Temporal Dynamics of Regulation Following Trigger Types and Trigger Accumulation
Mengke Wang, University of Oulu, Finland; Márta Sobocinski, University of Oulu, Finland; Justin Edwards, University of Oulu, Finland; Joni Lämsä, University of Oulu, Finland; Anni-Sofia Roberts, University of Oulu, Finland; Sanna Järvelä, University of Oulu, Finland

Patterns of digital activity and outcomes across study programs, and time in undergraduate education
Andres Araos, University of Oslo - IPED, Norway; Crina Damsa, University of Oslo, Norway; Jan Arild Dolonen, university of Oslo, Norway; Manuel Olivera Toro López, University of Oslo, Norway; Rachelle Esterhazy, Oslo Metropolitan University, Norway; Anna Mavroudi, University of Oslo, Faculty of Education, Norway

Tracing Temporal Trajectories of Collaborative Problem-Solving Using Ordered Network Analysis
Kamila Misiejuk, CATALPA, FernUniversität in Hagen, Germany, Germany; Rogers Kaliisa, University of Oslo, Faculty of Education, Norway; Crina Damsa, University of Oslo, Norway

Session Fri 20, 09:00 - 10:30:**2** | Time: 09:00-10:30 | Location: Amfiteatre

SYMPOSIUM: NONLINEAR DYNAMICS AND COMPLEXITY DURING LEARNING: LEVERAGING ONLINE TRACE DATA

Chairs
Megan Wiedbusch, University of Central Florida, United States; Roger Azevedo, University of Central Florida, United States

Discussant
Mohammed Saqr, University of Eastern Finland, Finland

Modeling Debugging Behavior Using Nonlinear Dynamics of Cognitive Load and Stress
Kshitij Sharma, Norwegian University of Science and Technology (NTNU), Norway; anahita golrang, Norwegian University of Science and Technology (NTNU), Norway

What Recurrence Rate Velocity Reveals about the Temporal Dynamics of SRL during Game-Based Learning
Megan Wiedbusch, University of Central Florida, United States; Cameron Marano, University of Central Florida, United States; Roger Azevedo, University of Central Florida, United States

Multi-level network modelling of synchronous learner discussions: From utterances to relations
Oleksandra Poquet, TUM, Germany

Session Fri 20, 11:00 - 12:30:**1** | Time: 11:00-12:30 | Location: Sala polivalent 1

SINGLE PAPER: LOG DATA AND ASSESSMENT

Chair
Tiina Törmänen, University of Oulu, Finland

When Feedback Is Not Processed: Rethinking the Validity of Feedback Evaluations
Tobias Deribo, DIPF | Leibniz Institute for Research and Information in Education, Germany; Cordula Artelt, Leibniz Institute for Educational Trajectories, Germany; Frank Goldhammer, DIPF | Leibniz Institute for Research and Information in Education, Germany; Carolin Hahnel, Ruhr University Bochum, Germany; Ulf Kroehne, Chemnitz University of Technology, Germany; Johannes Naumann, University of Wuppertal, Germany; Cornelia Schoor, Leibniz Institute for Educational Trajectories (LIfBi), Germany; Theresa Zink, Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Germany

Using IRTrees to model resource-usage processes and their relation to learning outcome measures
Leonard Tetzlaff, German Institute for International Educational Research (DIPF), Centre for International Student Assessment (ZIB), Germany; Carolin Hahnel, Ruhr-University Bochum, Germany; Frank Goldhammer, German Institute for International Educational Research (DIPF), Centre for International Student Assessment (ZIB), Goethe University Frankfurt, Germany

Time on task effects on language comprehension in beginning readers vary by modality and process
Johannes Naumann, University of Wuppertal, Institute for Educational Research, Germany; Patrick Dahdah, University of Wuppertal, Institute for Educational Research, Germany; Julia Schindler, Free University of Berlin, Department of Education and Psychology, Germany; Maj-Britt Haffmanns, University of Kassel, Department of Developmental Psychology, Germany; Tobias Richter, University of Würzburg, Department of Psychology IV, Germany

Matching process-level disfluencies with macro-level fluency differences across writing conditions
Gaëtanelle Gilquin, UCLouvain, Belgium; Quentin Feltgen, Université catholique de Louvain (UCL), Belgium; Georgeta Cislaru, Université Sorbonne Nouvelle, France

Session Fri 20, 11:00 - 12:30:**2** | Time: 11:00-12:30 | Location: Amfiteatre

INVITED SYMPOSIUM (SIG 27 CONFERENCE 2026): JURE INVITED SYMPOSIUM. UNCOVERING VISUAL STRATEGIES IN LEARNING AND TEACHING WITH EYE TRACKING

Chair
Kateryna Horlenko, Vytautas Magnus University, Lithuania

Organiser
Kateryna Horlenko, Vytautas Magnus University, Lithuania

Discussant
Saswati Chaudhuri, University of Jyväskylä, Finland

Object enumeration from naturalistic photos – An eye tracking study with 5- and 6-year-olds
Satu Rajalakso, University of Helsinki, Finland; Markku Hannula, University of Helsinki, Finland; Ilona Södervik, University of Helsinki, Finland; Minna Hannula-Sormunen, University of Turku, Finland

Conceptual prequestions and reading behavior in secondary school: An eye-tracking study
Mario Romero-Palau, University of Valencia, Spain; Ladislao Salmeron, University of Valencia, Spain

Professional vision: Exploratory eye tracking study on the visual strategies of teacher trainers
Valérie DUVIVIER, Université de Mons, Belgium; CONSTANCE COEN, Université de Mons, Belgium

Analyzing pre-service teachers' diagnostic competence in mathematics using eye-tracking
Shayla Giap, TUM, Germany; Yifan Ding, Technische Universität München (TUM), Germany; Michael Nickl, Technical University of Munich (TUM), Germany; Enkelejda Kasneci, Technical University of Munich, Germany; Stefan Küchemann, LMU Munich, Germany; Matthias Stadler, LMU Munich, Germany; Andreas Obersteiner, Technical University of Munich, Germany

Session Fri 20, 14:45 - 16:15:**1** | Time: 14:45-16:15 | Location: Sala polivalent 1

SINGLE PAPER: MOTIVATION

Chair
Tanya Chichekian, Université de Sherbrooke, Canada

Tracing learners in the Math Marathon: Challenges and solutions in data collection
Rimantas Vosylis, Kaunas University of Technology, Lithuania; Rasa Erentaitė, Kaunas University of Technology, Lithuania; Simona Sankalaitė, Kaunas University of Technology, Lithuania; Berita Simonaitienė, Kaunas University of Technology, Lithuania

Exploring prosody as an indicator of motivational monitoring during collaborative learning
Kateryna Zabolotna, University of Oulu, Finland, Finland; Tiina Törmänen, University of Oulu, Finland; Tanvir Hasan, University of Oulu, Finland; Hanna Järvenoja, University of Oulu, Finland

Capturing In-Situ Motivation: Validating Situational Expectancy-Value Measures in Digital Context
Rimantas Vosylis, Kaunas University of Technology, Lithuania; Rasa Erentaitė, Kaunas University of Technology, Lithuania; Ida Vainio, Kaunas University of Technology, Lithuania

Session Fri 20, 14:45 - 16:15:**2** | Time: 14:45-16:15 | Location: Amfiteatre

INVITED SYMPOSIUM (SIG 27 CONFERENCE 2026): SIG 7 INVITED SYMPOSIUM. IMMERSIVE ENVIRONMENTS FOR AFFECTIVE LEARNING PROCESSES: FINDING OUR PATH

Chairs
Valdemar Stenberdt, University of Copenhagen, Denmark; Jule Krüger, University of Twente, Netherlands

Organiser
Jule Krüger, University of Twente, Netherlands

Discussant
Yizhen Huang, Hector Research Institute of Education Sciences and Psychology, Germany

Beyond self-report: measuring affective processes in immersive 360° learning environments
Veronica Nisticò, Swiss federal university for vocational education and training, Switzerland; Francesca Amenduni, Swiss federal university for vocational education and training, Switzerland; Laura Fusi, Swiss federal university for vocational education and training, Switzerland; Alice Tela, Swiss federal university for vocational education and training, Switzerland; Alberto Cattaneo, Swiss federal university for vocational education and training, Switzerland

Embodying nature in iVR: The role of compassion, nature connectedness and electrodermal activity
Jule Krüger, University of Twente, Netherlands; Pia Spangenberger, Universität Potsdam, Germany; Sonja Geiger, Eberswalde University of Sustainable Development, Germany; Georg Felix Reuth, Hector Research Institute of Education Sciences and Psychology, Germany; Lena Baumann, Universität Potsdam, Germany; Steve Nebel, Universität Postdam, Germany

Investigating curiosity-driven exploration processes in immersive media
Valdemar Stenberdt, University of Copenhagen, Denmark; Guido Makransky, University of Copenhagen, Denmark

Session Fri 20, 16:15 - 17:45:**1** | Time: 16:15-17:45 | Location: Sala polivalent 1

POSTER PRESENTATION: POSTERS C

Chair
Mohammed Saqr, University of Eastern Finland, Finland

Examining GenAI Use in Collaborative Learning Through a Trigger Regulation Lens
Mengke Wang, University of Oulu, Finland; Tiina Törmänen, University of Oulu, Finland; Niklas Heikkala, University of Oulu, Finland; Sanna Järvelä, University of Oulu, Finland

Trust Calibration in AI-Supported Team collaborative learning: A Multimodal Process Study
Tam Le Hong, University of Oulu, Finland

When Generative AI Enters the Group: How Bring-in and Repair Shape AI-Mediated Interaction
Danyu Yang, Oulu university, Finland; Anni silvola, University of Oulu, Finland; Hanni Muukkonen, University of Oulu, Finland

The Gaze on a Case: Eye-tracking during discussion of research integrity – Automatic AOI-detection
Reito Visajaani Salonen, Helsinki Institute for Social Sciences and Humanities, University of Helsinki, Finland; Erika Löfström, University of Helsinki, Finland; Enrique Garcia Moreno-Esteva, University of Helsinki, Finland; Prince Nnaemeka, University of Helsinki, Finland; Markku Hannula, University of Helsinki, Finland

Trust Calibration in AI-Supported Team collaborative learning: A Multimodal Process Study
Tam Le Hong, University of Oulu, Finland; Luna (Thi Thu Nguyet) Huynh, University of Oulu, Finland; Andy (Khanh Xuan) Nguyen, University of Oulu, Finland

Primary School Students' Regulation of Learning During a STEAM Project
Jenni Latva-aho, University of Jyväskylä, Finland; Héctor J. Pijeira-Díaz, University of Jyväskylä, Finland; Piia Naykki, University of Jyväskylä, Finland