

# Positive Learning in the Age of InformaTiOn



## THE ANNUAL NEWSLETTER

December 2023

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Dear colleagues, we are pleased to share our highlights of 2023 and current progress in PLATO and are very much looking forward to further collaboration in 2024!

### Current News

The set-up funding for PLATO from the State of Rhineland-Palatinate will end this year. We are pleased to announce that, moving forward, PLATO will continue as a research network. The **DFG-funded research unit FOR CORE** was launched in September 2023, laying solid foundations for focused research over the next four years. We are greatly looking forward to continuing the excellent collaborations with you.

In fall 2023, the new **PLATO lab** was established for experimental research and is now open to all members of PLATO and the FOR CORE.

Further events and activities in 2023 included the **PLATO summer workshop**, the **BRIDGE final conference**, the **FOR CORE joint international kick-off** conference, as well as further **workshops** and **young researcher research projects** from the Training Group DIAPASON.

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JOHANNES GUTENBERG  
UNIVERSITÄT MAINZ



## FOR CORE: Research Focus

The interdisciplinary and international research unit “**Critical Online Reasoning in Higher Education (CORE)**” (FOR 5404) was funded by the German Research Foundation (DFG) for an initial period of four years (2023–2027) and aims to explore the online learning behaviors and online information landscapes that students in medicine, physics, economics, and social sciences use for their studies.

The Research Unit CORE is a consolidated group of 55 (inter)national researchers from 15 disciplines including a strong community of young researchers (PhD Candidates & Postdocs). All have established collaborative working structures and methods for interdisciplinary mix-methods research.



(A) **University students’ Critical Online Reasoning (COR) skills in economics and medicine** (compared to social sciences and physics) and development of COR skills over the course of bachelor studies)



(B) **Online Information Landscape:** web sources and content that students select and use for learning about course-related topics, **and its characteristics**, including accuracy and comprehensibility, media and linguistic features, narrative frames, latent meaning structures, **and influence** on students’ source use in higher education.



(C) **Relationship** between

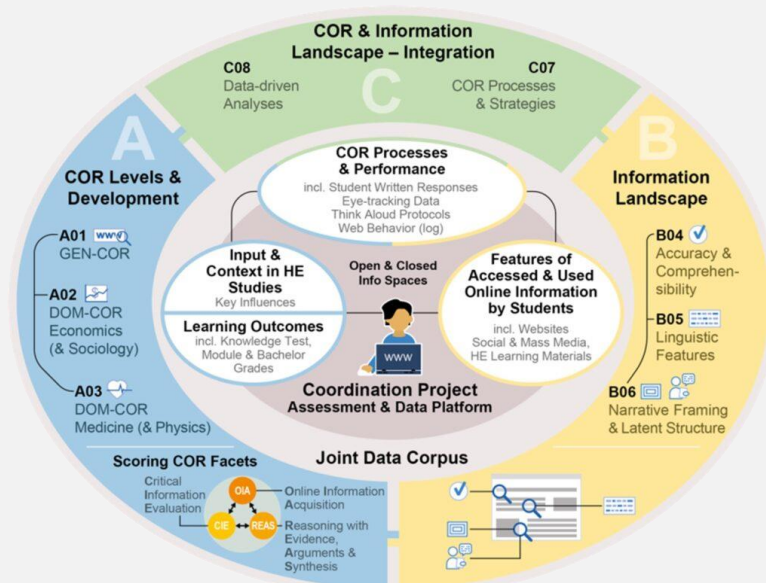
- (1) the level and development of students’ COR skills,
- (2) the features of the Online Information Landscape that students use for their learning, and
- (3) students’ learning success in higher education.



## FOR CORE: Research Areas and Projects

We use the theoretical-conceptual and assessment framework to:

1. Assess and examine students' Generic and Domain-Specific Critical Online Reasoning skills for acquiring and using online information in self-directed study and the relationship between COR development, higher education contexts, and study success (e.g. grades) [Area A];
2. Analyze the online information landscape—features and quality of sources and content used by students in higher education to solve course-related COR tasks [Area B];
3. Analyze and align students' COR process and performance data (from A) with annotated data from sources to content (from B) in method-integrative approaches and information processing studies [Area C].



→ please find further information at [www.core.uni-mainz.de](http://www.core.uni-mainz.de)

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## FOR CORE: Principal Investigators



### Johannes Gutenberg-University Mainz



Prof. Banerjee



Prof. Bisang



Dr. Brückner



Prof. Maurer



Prof. Schelle



Prof. Schemer



Dr. Schmidt



Prof. Schmidt



Prof. Troitschanskaia



### DIPF/ Goethe University Frankfurt



Prof. Drachsler



Prof. Goldhammer



Prof. Hartig



Dr. Köhler



Dr. Weber



Dr. Klose



Prof. Mehler



Prof. Roeper



### Ludwig Maximilian University Munich



Prof. Fischer



Dr. Küchemann



Prof. Kuhn



Dr. Zottmann



### Ruhr University



Prof. Hahnel

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## FOR CORE: Internationale PIs and RAB

### International Principal Investigators



Prof. Dengel



Prof. Gardner



Prof. Berliner



Prof. Cortina



Prof. Leighton



Prof. Alexander



Prof. Walstad



Prof. Solano-Flores



Prof. van Gog



Prof. Heyer

### Mercator Fellow

### Research Advisory Board

FOR CORE is supported by a Research Advisory Board (RAB), who provide guidance, crucial advice, and support. Their roles include providing strategic direction, ensuring research quality, sharing expertise, and fostering collaboration. The RAB helps align research with organizational goals and contributes to the overall success and applicability of research initiatives.



Prof. Artelt



Prof. Fellbaum



Prof. Fischer



Prof. Güntürkün



Prof. Hesse



Prof. Klieme



Prof. Koretz



Prof. Leutner



Prof. Pellegrino



Prof. Shavelson

The Research Unit FOR CORE is a consolidated group of over 55 (inter-)national researchers from 15 institutions including a strong community of over 25 young researchers (PhD Candidates & Postdocs).

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## PLATO Postdoc Group

The productive collaboration of the PLATO postdoc group has led to the new DFG-funded FOR CORE project C07 “Students’ generic and domain-specific critical online reasoning task-solving processes and strategies and their development over the course of a degree program in and across four domains (economics, medicine, physics, sociology”. The new project has been presented at national conferences, such as the Conference on the Working Group of Empirical Educational Research (AEPF).

We look forward to providing further details in the coming year.

Brückner, S., Küchemann, S., Weber, M. & Klose, V. (2023, Sept 15). *Dispositionen, Strategien und Erfolg von Hochschul-studierenden im Umgang mit Online-Informationen – Projekt C07* [symposium presentation]. AEPF, Potsdam, Germany.



Sebastian  
Brückner,  
Johannes  
Gutenberg-  
University  
Mainz



Shoya  
Ishimaru,  
Technical  
University  
Kaisers-  
lautern



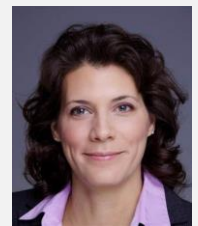
Verena  
Klose,  
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Stefan  
Küchemann,  
Ludwig-  
Maximilians-  
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Susanne  
Schmidt,  
Johannes  
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Weber,  
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University  
Frankfurt



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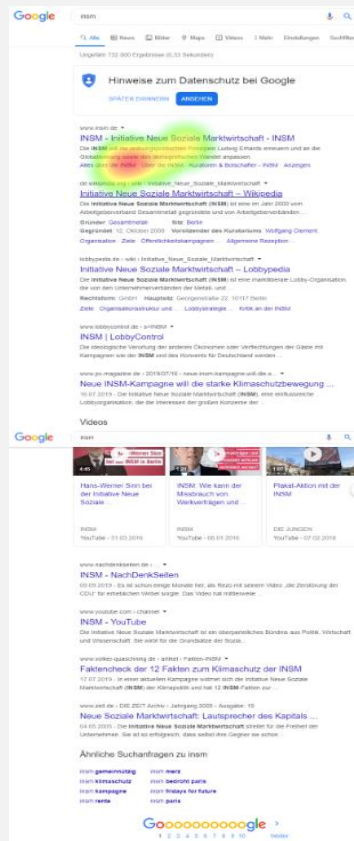
## New PLATO Lab

In fall 2023, we set up a new PLATO Lab. Due to the increasing prevalence of dynamic and digital learning environments, research needs to be conducted in a modern and data-driven way using innovative technologies. Learning environments also need to be replicated as authentically as possible. In the new PLATO research laboratory, two experimental rooms and one control room are being set up to design, conduct and monitor these experiments. In the laboratory, physiological reactions and behavioral patterns in individual learning processes are recorded using eye-trackers, verbal data and other technologies. This enables direct analysis of learning processes and information capture of internal processes, which lead to learning outcomes and the prerequisites for this. For example, experiments on students' critical online reasoning are conducted in a natural environment and analyzed by documenting and evaluating response processes and task-solving strategies using eye trackers. This also makes it possible to systematically analyze learning in internet-based environments (see figure on the next slide on students' Internet-based research).



## New PLATO Lab

With the new PLATO Lab, we have thus made great progress in modern and data-driven educational research, which will not only make it possible to significantly improve the diagnostics of teaching and learning, but also open up the possibility of designing the evidence-based teaching methods of tomorrow.



*Illustration of PLATO lab results: Gaze heatmap on a SERP during COR task: Differences in the search engine-based research of a suitable source by two test participants (left and right) recorded with a Tobii X3-120 eye tracker, visualized in a heatmap. Red areas indicate a longer and more frequent focus on the website content.*

The PLATO LAB is now one of several labs collaborating within the FOR CORE (e.g. Text Technology Lab and Educational Technology lab at GU and DIPF Frankfurt).

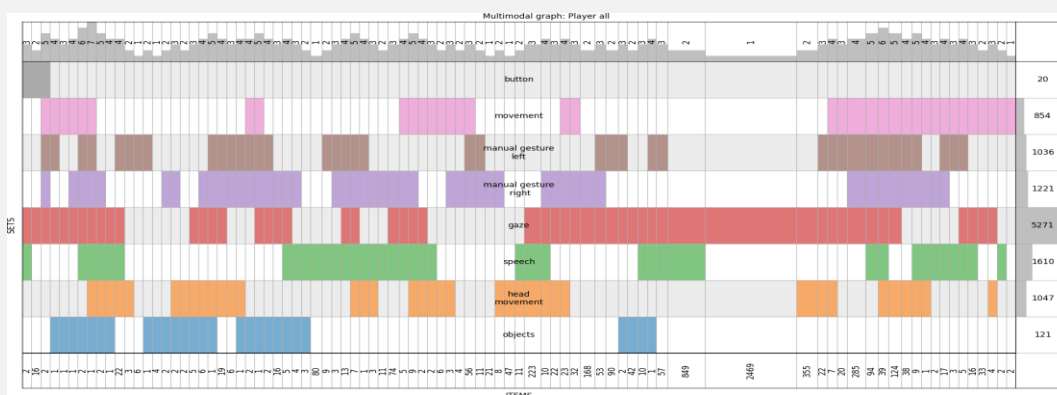




## Lab News: Va.Si.Li-Lab

### Studying Critical Online Reasoning in Terms of Simulation-based Learning in Multi-agent Environments with Va.Si.Li-Lab

To study complex multi-agent processes, it is necessary to overcome the limitations of existing methods for observing learning behavior which are mostly based on the evaluation of click events and eye movement behavior, in order to control the analysis of the multiple texts which are generated. Virtual environments represent a promising alternative here as they make human behavior (manifested by avatars) observable across a very broad spectrum of multimodal communication. Alexander Mehler and his team at GU Frankfurt have developed such a system, which is called Va.Si.Li-Lab – a virtual reality-based lab for simulation-based learning. Va.Si.Li-Lab is applied primarily in the field of simulation-based learning, the advantages of which it combines with those of approaches that investigate students COR.



**Fig. 1** A so-called supervenn diagram showing the manifestation of multimodal information channels by a group who played a simulation-based learning game with Va.Si.Li-Lab. The rows indicate the manifestation of each mode over time, the columns the multimodal ensembles based on information units of different modes. We consider button use, body movement, manual gestures (with left and right hand), gaze, speech, head movement and object manipulation.



## Lab News: Va.Si.Li-Lab



**Fig. 2** A classroom situation as part of school pedagogy. There are screens on the wall where students can use interactive browsers to search for information on the web. They can also do this with their virtual laptops. Alternatively, they can interact with LLM-driven chatbots.



**Fig. 3** A dialogue situation at the periphery of a simulation-based learning scenario.

## PLATO Summer Workshop 2023

**On 5<sup>th</sup> - 6<sup>th</sup> July 2023**, researchers from the PLATO projects (iPAL, BRIDGE, CORA) came together in Mainz for an interactive symposium on current developments and challenges in critical thinking assessment development and deployment. The program included diverse talks (selection):

Kai Cortina (University of Michigan) opened with *Performance Assessment and Training in Higher Education: Does College Improve Cross-Curricular Skills? A Critical Review*

Doreen Holtsch (University of Zürich) & Natalia Ronderos (PH St. Gallen) shared *Experiences and Perspectives from iPAL in Switzerland*

Stefan Küchemann & Jochen Kuhn (LMU Munich) highlighted *ChatGPT in Education: Opportunities and Challenges of Large Language Models*

Alexander Mehler, Mevlüt Bağcı, Giuseppe Abrami et al. (GU) showcased *Va.Si.Li-Lab: Simulation-Based Learning and Performance Assessment in VR - Development and Live Demonstration*

Bill Walstad (University of Colorado Boulder) spoke on *Alternative Measures for Student Development and Learning Progression: Learning Scores and Their Potential for Diagnostic and Instructional Purposes*

The workshop set the stage for further developments and refining of iPAL and the recent FOR CORE assessments.

**We thank all participants for such stimulating discussions!**

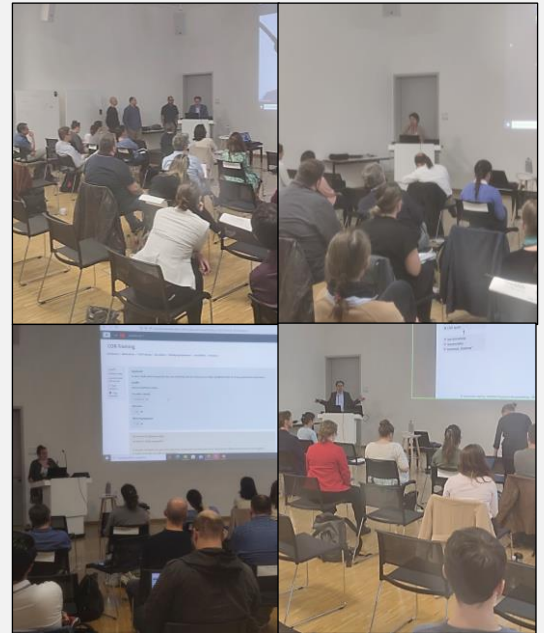


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## BRIDGE Closing Conference

As the BRIDGE project came to an end in September 2023 a final conference with the scientific advisory board and the PIs was held on 21<sup>st</sup> – 22<sup>nd</sup> September at the Helmholtz Institute on the campus of Johannes Gutenberg University Mainz. Over these two days, the focus was firmly on the most important findings and results from the BRIDGE project, including the new **online training** (see on the next slide) as well as consequences for further research.



BRIDGE-Abschlusskonferenz  
21.09.-22.09.2023  
Helmholtz-Institut Mainz, Staudingerweg 18, 55128 Mainz

**Agenda**

Donnerstag, 21.09.2023	Freitag, 22.09.2023
12:30 - 13:00 h Welcome & Mittagessen	9:00 - 10:00 h Weitere Einblicke aus der BRIDGE Datenanalyse Dominik Bannhölzer, Anika Kohler, Alva Lauffer & Amine Touzas Analysen der internen Struktur des CoR Konstrakts und psychometrische Empfehlungen Daniela Fedorak
13:00 - 13:30 h Überblick zu den zentralen Ergebnissen im BRIDGE Projekt Olga Trotschanskaia et al.	10:00 - 10:30 h Gruppendiskussion & Take Aways Moderiert von Johannes Hinrig
13:30 - 14:15 h Technischer Aufbau des Projekts BRIDGE: Assessment- und Feedback-Plattform mit Live-Demonstration Susanne Schmidt, Kevin Oberweil & Lisa Maritz de los Santos	10:30 - 11:00 h Kaffeepause
14:15 - 14:45 h Entwicklung und Einsatz eines digitalen Trainings zur Förderung der GEN- und DOM-CoR-Kompetenzen (mit Live-Präsentation) Jennifer Fischer et al.	11:00 - 11:15 h Mittagessen
14:45 - 15:00 h Kaffeepause	11:15 - 12:45 h Parallele Sitzungen des wissenschaftlichen Beirats und der FOR CORE
15:00 - 15:20 h Lessons Learned aus Assessments der GEN/CoR-Kompetenzen in BRIDGE Marie-Theres Engel et al.	12:45 - 13:15 h Mittagessen
15:20 - 15:40 h Erfahrungen aus der DOM-CoR-Analyse von Motivationstests im PI Vivian Klitz & Jochen Rasper	13:15 - 14:45 h Feedback des Beirats mit einer anschließenden Gruppendiskussion: Take Aways für die FOR CORE Moderiert von Olga Trotschanskaia
15:40 - 16:00 h Erfahrungen zur Förderung und Entwicklung der DOM-CoR-Kompetenzen im Molekularium Anika Kohler & Iris Demmer	15:00 h Ende der Konferenz
16:00 - 16:30 h Gruppendiskussion & Take Aways für CORE Moderiert von Olga Trotschanskaia & Iris Demmer	15:00 - 16:30 h Parallele Treffen der erweiterten Steuerungsgruppe CORE / Treffen der Young Researchers VOSE
16:30 - 16:45 h Kaffeepause	
16:45 - 17:30 h DOM- und GEN-CoR bezogene Modellierung von Online-Texten (mit Live-Präsentation) Maxim Kancz, Daniel Bomaner, Moritz Bopp, Andy Lücking & Alexander Mehler	
17:30 - 18:00 h Modellierung der Informationsrelevanz (IR) zur Bewertung und Analyse von DOM-CoR und GEN-CoR Alexander Mehler, Wolter Bönig & Mike Beyerle	
18:00 - 18:30 h Gruppendiskussion & Take Aways Moderiert von Carin Schelle	

Following the final conference, a practical work-shop was held on 25 September at the Helmholtz Institute, where the practice-relevant analyses and project results were presented and discussed, including with various participating practice partners from the fields of law, medicine, and teaching.

## BRIDGE Online Training



### Development and evaluation of digital training to promote the critical use of online information among trainee teachers



#### Relevance

- Teachers are increasingly using online information in lesson planning and delivery

Frequent Internet use  
 $\neq$   
 Greater competence in dealing with online information



⚡ (Teacher training) students show competence deficits concerning the critical evaluation of online information  
 Systematic skills development required

#### Objective

- Effective promotion of the critical use of online information among trainee teachers
- Promotion of generic (GEN-COR) and domain-specific (DOM-COR) use of online information

Design and evaluation of a digital training course taking into account didactic principles



#### Concept of the training

- Based on ADDIE instructional design model



- Format:** Web-based training (WBT)
  - an authentic learning environment on the Internet
  - User data provides insights into learning processes
- Target group:** Trainee teachers
  - High practical relevance in studies and everyday working life

#### Conceptual framework

##### Critical Online Reasoning (COR)

Three interdependent competence facets:

- Online information acquisition (OIA)
- Critical evaluation and selection (CIE)
- Reasoning based on evidence and synthesis (REAS)



(Molero et al., 2020)

- The complete information procurement process is represented by the three facets

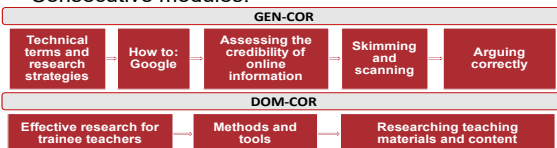
- Distinction between:

Generic COR (GEN-COR)

Domain-specific COR (DOM-COR)

#### Structure of the training

- Consecutive modules:



- Complete information procurement process
- Constructivist approach (incl. development of independent evaluation criteria)

#### Evaluation of the training



- Expert interviews
- Feedback from participants
- First evaluation with a pre-post performance-based online assessment of DOM-COR before and after the training (n=30)

#### Conclusion & Outlook

Promoting the critical use of online information through training

Innovative approach with real Internet environment

Feedback platform incl. individual learning strategies

Efficacy analyses with control groups in CORE

Kohmer, Anika; Zlatkin-Troitschanskaia, Olga; Nagel, Marie-Theres; Fischer, Jennifer & Molero, Dimitri  
 Johannes Gutenberg University Mainz

##### Literature

- Branch, R.M. (2009). Instructional Design: The ADDIE Approach. Springer.
- Molero, D., Zlatkin-Troitschanskaia, O., Nagel, M.T., Brückner, S., Schmidt, S. & Shavelson, R. Mihalov. (2020). Assessing University Students' Critical Online Reasoning Ability: A Conceptual and Assessment Framework with Preliminary Evidence. *Frontiers in Education*, 5, 1-29. <https://doi.org/10.3389/feet.2020.577843>
- Nagel, M.-T., Schaller, S., Zlatkin-Troitschanskaia, O., Scherer, C., Meyer, M., Molero, D., Schmidt, S. & Brückner, S. (2020). How Do University Students' Web Search Behavior, Web-site Characteristics, and the Interaction of Both Influence Students' Critical Online Reasoning? *Frontiers in Education*, 5(240692). doi: 10.3389/feet.2020.240692
- Zlatkin-Troitschanskaia, O., Brückner, S., Nagel, M.-T., Bittmann, A.-K., Fischer, J., Schmidt, S., & Molero, D. (2021). Performance Assessment and Digital Training Framework for Young Professionals' Generic and Domain-specific Online Reasoning in Law, Medicine, and Teacher Practice. *Journal of Experimental Politics of Education*, 11, 9-36.

GEFÖRDERT VOM





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## CORE KICK-OFF-CONFERENCE

The international kick-off conference of the DFG Research Unit CORE on "Critical Online Reasoning in Higher Education", held at the Johannes Gutenberg University Mainz on 4<sup>th</sup> and 5<sup>th</sup> December 2023, was a comprehensive exploration of the ongoing projects within the unit. The agenda was filled with engaging sessions, presentations and discussions that provided invaluable insights into the current state of research and our initial findings.

The conference started with an official welcome by Prof. Stefan Müller-Stach, Vice-President of JGU Mainz. The members of the CORE Research Advisory Board and the International Principal Investigators were then presented. This was moderated by Olga Troitschanskaia, who also presented the sessions to follow.



Over the two days, the Principal Investigators presented their A, B, and C projects, providing an insight into the different areas of research and their initial results. The range of topics included the measurement and development of critical thinking skills, when working online in different academic domains, the analysis of media content used in online learning settings, and the exploration of narrative framing and latent meaning structures of online information.

The second day of the conference included speed coaching with YORE, presentations of initial results from the CORE Task Groups, and a roundtable discussion to foster collaboration and knowledge sharing. The event concluded with critical feedback from the Research Advisory Board, summarizing the main impulses and outlining next steps.

# Positive Learning in the Age of InformaTiOn



Digital Information Landscape

## DIAPASON

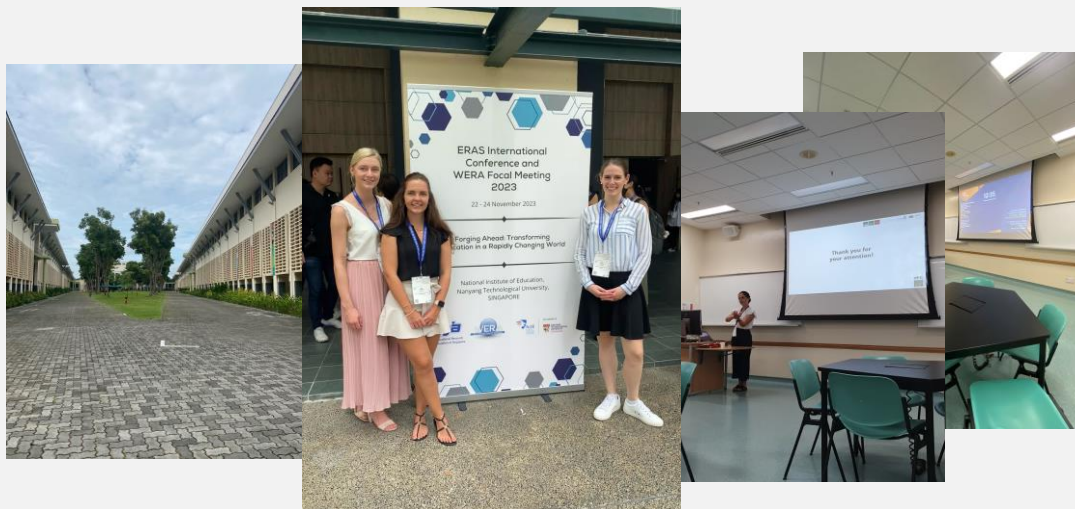
Students' Online Learning

## Postgraduate Research Training Group DIAPASON

At JGU Mainz, the scholarship recipients in the postgraduate research training group “DIAPASON” are in their penultimate year, and the final phases of their dissertations. The following slides summarize their reflections on this year’s highlights, including advances in research, presentations, publications, and personal experiences.

Throughout their research, they have made important contributions and were invaluable when preparing FOR CORE research projects.

We are proud to announce that all five scholarship recipients have joined a newly approved FOR CORE research project and will continue driving innovations as part of the young researchers in the group.



*DIAPASON awardees present early results at WERA (World Educational Research Association) Focal Meeting 2023, National Institute of Education, Nanyang Technological University, Singapore.*

With the new hires in FOR CORE projects, we are much looking forward to showcasing the work of more Young Researchers in future editions.

# Positive Learning in the Age of InformaTiOn



Digital Information Landscape

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DIAPASON PhD project – Dominik Braunheim

## Dissertation project:

Students rely more and more on digital media as a basis for their own academic research and how they gather information. The online information landscape provides a vast, but often unreliable, means of finding information for a variety of topics. My current dissertation project details a wide range of factors which influence source selection and the synthesization process of information. During this process students build task-related arguments, while critically dealing with digital media. Gaining a better understanding of the factors which influence these process-steps may lead to improved diagnostics and more targeted intervention for students in higher education.

## Selected Presentations 2023:

Braunheim, D. (2023, Apr 13-16). *Variability Among Students From Different Majors in Critically Dealing with Multiple Information Sources*. American Educational Research Association (AERA), Chicago, USA.

Braunheim, D. (2023, Aug 22-26). *Regular media use and learning effects on the ability to critically reason with digital media*. European Association for Research on Learning and Instruction (EARLI), Thessaloniki, Greece.

## Selected Publications 2023:

Braunheim, D., Zlatkin-Troitschanskaia, O. & Nagel, M.-T. (2023). Erfassung und Förderung von Kompetenzen zum kritischen Umgang mit Online-Informationen bei Rechtsreferendarinnen und -referendaren. *Zeitschrift für Didaktik der Rechtswissenschaften*, 2, 115–137.

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DIAPASON PhD project – Patryk Czerwinski

## Role of linguistic factors in information processing

Patryk Czerwinski works on the syntax and morphology of East Asian languages (Japanese, Korean, Manchu-Tungusic) in the framework of comparative linguistics. In his contribution to the research unit, he investigates the degree to which various structural-linguistic (grammatical) factors influence linguistic processing (parsing) of texts. In particular, he focuses on the grammatical domains of mood and modality, evidentiality (grammatically coded source of information), complex sentences, and information structure, in a number of structurally diverse languages, namely English, German, Japanese and Korean. These are the domains he has identified as the most promising in terms of determining how the linguistic properties of texts affect information processing, reasoning, and ultimately students' learning outcomes.

Currently, he is investigating the degree to which the presence or absence of linguistic coding of the source, reliability, and the writer's stance towards the information, in maximally structurally divergent languages (English and Korean) can affect the reader's ability to discern reliable from unreliable information in online news media.

## Selected Presentations 2023:

Czerwinski, P. (2023). *Complex predicates in North Asian languages in an areal-typological perspective*. Morphology Research Group/Korean Association of Linguistic Typology Joint Semi-Annual Conference.

## Selected Publications:

Malchukov, A. & Czerwinski, P. (to appear Feb 2024). Complex predicates in North Asian languages. In E. Vajda (Ed.), *The languages and linguistics of northern Asia* (pp. 1065–1119). De Gruyter Mouton.

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DIAPASON PhD project – Anika Kohmer

## Acquisition and Promotion of COR in Medicine:

Particularly in medicine, young professionals are confronted with an information-rich online-environment on a daily basis. They therefore need to make well-informed medical decisions regarding patient care, which requires them to acquire critical and reflective strategies for online research. Despite this, these skills are not sufficiently embedded in the curricula and young medical professionals report feeling unprepared for professional practice. Therefore, my dissertation project aims to analyze, in the context of developing diagnostic plans, the extent to which these necessary DOM COR-skills are embedded in human medical studies in Germany. How well those skills are developed among entry-level medical professionals must also be analyzed. I have set out a competence profile for DOM COR-skills in medicine and further applied mixed-methods including qualitative content analyses, interviews, and statistical analyses to conduct in-depth needs and performance analyses. Based on these results, I will be able to recommend further steps in medical education.

## Selected Presentations 2023:

Kohmer, A. (2023, Feb 27-Mar 2). *Erfassung und Förderung des kritischen Umgangs mit Online-Medien im Rahmen der Erstellung von Diagnostikplänen in der Fachdomäne Medizin*. Gesellschaft für Empirische Bildungsforschung (GEBF), Essen, Germany.

Kohmer, A., Zlatkin-Troitschanskaia, O., Nagel, M.-T. & Fischer, J. (2023, Sept 13-15). *Entwicklung und Validierung eines digitalen Trainings zur Erfassung und Förderung des kritischen Umgangs mit Online-Informationen bei LehramtsreferendarInnen im Fach Wirtschaft*. Conference on the Working Group of Empirical Educational Research (AEPF), Potsdam, Germany.

Kohmer, A., Klose, V., Nagel, M.-T., Fischer, K. & Martin de los Santos Kleinz, L. (2023, Nov 22-24). *Effects of Digital Training Tool on "Critical Online Reasoning" among Young Professionals in Medicine: Results from a Pre-Post-Study*. World Educational Research Association (WERA) Focal Meeting, Singapore.



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Digital Information Landscape

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DIAPASON PhD project – Alice Laufer

Alice Laufer is investigating **the role of the website and the characteristics of an individual when searching for and evaluating online information.**

Preliminary results show that the search for online information is dependent on a website's characteristics and that an individual's predispositions (e.g., cognitions) affect this also. Her research makes a great contribution to pedagogical theory concerning online critical reasoning and its relationship to individual prerequisites (e.g., dispositions) and selected characteristics. This has led to an improvement in critical thinking and decision-making among students when navigating digital material.

## Selected Presentations 2023:

Laufer, A., Federiakin, D. & Zlatkin-Troitschanskaia (2023, Nov 22-24). *Measuring Relations between Individual and Website Characteristics on Information Search Using Bayesian Statistics*. World Educational Research Association (WERA), Focal Meeting, Singapore.

Laufer, A. (2023, Nov 22-24). *Prompt Engineering as a New 21st Century Skill*. WERA Focal Meeting, Singapore.

Laufer, A., Fischer, J., Zlatkin-Troitschanskaia, O., Pöttsch, J. & Schumacher, J. (2023, Nov 22-24). *Use of Online Media for Student Learning in Higher Education – Insights from a Review of Current International Research*. WERA Focal Meeting, Singapore.

## Selected Publications 2023:

Laufer, A., & Schemer, C. (2023). The Influence of Cognitive Abilities When Evaluating Information within an Information Problem Online. In *Accelerating the Future of Higher Education* (pp. 6–29). Brill. [https://doi.org/10.1163/9789004680371\\_002](https://doi.org/10.1163/9789004680371_002)

# Positive Learning in the Age of InformaTiOn



Digital Information Landscape

DIAPASON

Students' Online Learning



DIAPASON PhD project – Amina A. Touzos

## From COR to Gaming

Most of today's students can be considered "digital natives" – those who grew up with digital content and technology. It is crucial to understand which types of digital media students use, and how they use them. As part of my dissertation project, I am examining students' use of entertainment media, particularly video games. In a small empirical study, I aim to combine qualitative and quantitative methods to determine whether students recognize critical situations in games. For this, students are to play through two scenes from the narrative game *Detroit: Become Human* (2018) which places players into emotionally-loaded situations and demands critical decisions from them. To evaluate and analyze students' playing behaviors and thought processes, two Think-Aloud-Interviews are being conducted. The aim of this study is to establish whether, and how, students react to emotionally-loaded digital content and the possible connections between behaviors inside and outside of gaming.

## Selected Presentations 2023:

Touzos, A. (2023). *On Embodied Pain: Reading Emily Dickinson and Nikita Gill through the Medical Humanities*. Institute for World Literature.

## Selected Publications 2023:

Banerjee, M. & Evans, V. (2023). You're My People Now: *The Last of Us* Series on the Question of Belonging and Citizenship During the Age of Pandemics. In *Cultures of Citizenship in the 21st Century*.

Gehrmann, R. & Velten, J. (forthcoming). The Silver Fox of Video Games: Questions of Aging and Masculinity in CD Project's *The Witcher* Series. In *Gender, Age, and the New Media*, special issue of *Gender Forum*.

# Positive Learning in the Age of InformaTiOn

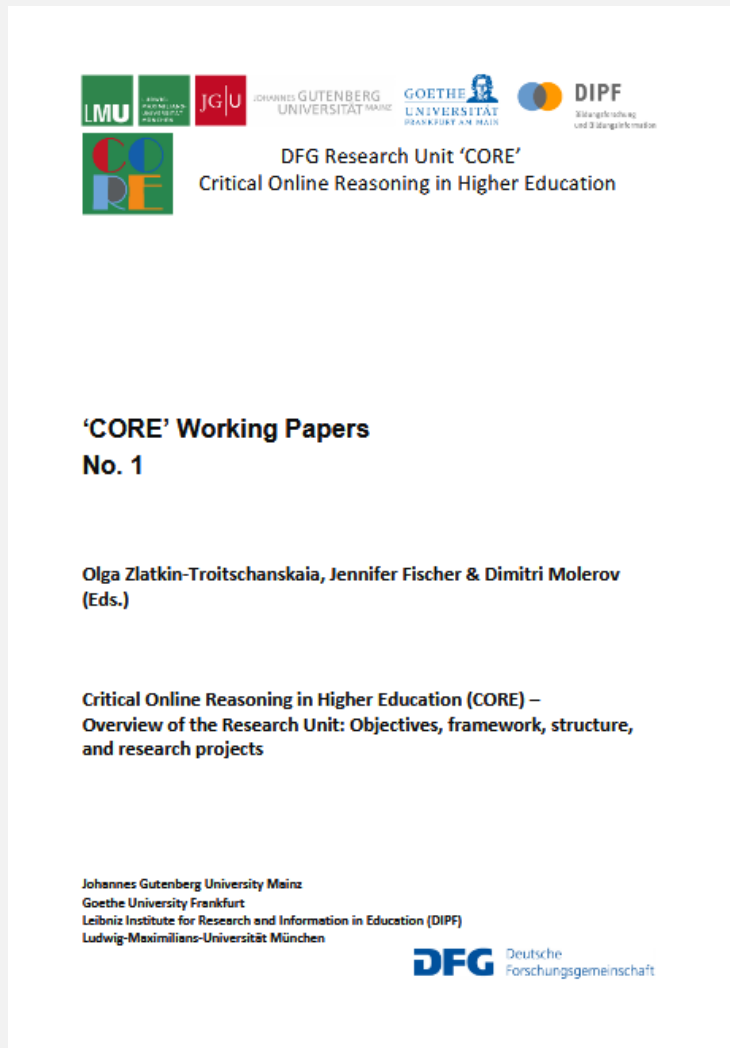


## FOR CORE: Working Paper Series

The previous working papers of the PLATO network will continue as part of the FOR CORE. The first CORE Working Paper has already been published.

Working Paper 1 includes all initial project overviews.

<https://core.uni-mainz.de/core-working-papers/>



## Recent Publications (Selection)

- Frank, K., Zlatkin-Troitschanskaia, O., Brückner, S., Schell, M., Liederbach, N., Dormann, C., & Reichert-Schlax, J. (in press). Evaluation of Multimedia Teaching-learning Tools to Promote the Media-didactic Knowledge of Student Teachers in Teacher Education. *Lehrerbildung auf dem Prüfstand*.
- Frank, K., Brückner, S., Zlatkin-Troitschanskaia, O., Schell, M., & Reichert-Schlax, J. (2023). Digitale Lehr-Lerntools zur Förderung handlungsorientierter Kompetenzen (angehender) Lehrkräfte. In J. Aufenanger & M. Bigos (eds.). *Digitalisierung in der Lehrer:innenbildung. Corona als Katalysator?!* (pp. 228-242). Weinheim: Beltz/Juventa.
- Leonhardt, A., Abrami, G., Baumartz, D., & Mehler, A. (2023). Unlocking the Heterogeneous Landscape of Big Data NLP with DUUI. *Findings of the Association for Computational Linguistics: EMNLP 2023* (pp. 1–15). Association for Computational Linguistics.
- König, J., Lindmeier, A., Zlatkin-Troitschanskaia, O., & Borowski, A. (2023). The transfer of digitalized teaching-learning and assessment tools in higher education: approaches and best practices. *Zeitschrift für Erziehungswissenschaft*, 26, 579–584. doi.org/10.1007/s11618-023-01172-w
- Mehler, A., Bagci, M., Henlein, A., Abrami, G., Spiekermann, C., Schrottenbacher, P, Konca, M, Lücking, A., Engel, J., Quintino, M, Schreiber, J, Saukel, K., & Zlatkin-Troitschanskaia, O. (2023). A Multimodal Data Model for Simulation-Based Learning with Va.Si.LiLab. In: Duffy, V.G. (eds) *Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management. Proceedings of HCI International 2023*. Lecture Notes in Computer Science, 14028. (pp. 539–565). Cham: Springer. DOI:10.1007/978-3-031-35741-1\_39
- Olivier, C., Zlatkin-Troitschanskaia, O., & Toepper, M. (in press). Research on the Internalization of Vocational Education and Training – Program Evaluation and its Implications. In M. Gessler, O. Zlatkin-Troitschanskaia, S. Bohlinger, C. Olivier, M. Toepper, A.Bieß, H. Long Nguyen & I. Scheuch (Eds.). *Expanding Horizons – Research on the Internationalization of Vocational Education and Training*. Springer.
- Reichert-Schlax, J., Zlatkin-Troitschanskaia, O., Frank, K., Brückner, S., Schneider, M., & Müller, A. (2023). Development and evaluation of digital learning tools promoting applicable knowledge in economics and German teacher education. *Education Sciences*, 13(5), 481. doi.org/10.3390/educsci13050481
- Schmidt, S., Zlatkin-Troitschanskaia, O., & Shavelson, R. J. (2023). Modeling and measuring domain-specific quantitative reasoning in higher education business and economics. *Frontline Learning Research*, 11(1), 40-56. doi.org/10.14786/flr.v11i1.885
- Walstad, W., & Zlatkin-Troitschanskaia, O. (2023). Learning Scores and Economics Instruction. *The American Economist*, 0(0), 1-15. doi.org/10.1177/05694345231207868
- Zlatkin-Troitschanskaia, O., Fischer, J., Braun, H.I., & Shavelson, R. J. (2023). Advantages and challenges of performance assessment of student learning in higher education. In R. Tierney, F. Rizvi, K. Ercikan (eds.). *International Encyclopedia of Education (4th Edition)*, pp. 312–330).
- Zlatkin-Troitschanskaia, O., Fischer, J., & Molerov, D. (eds.) (2023). ‘CORE’ Working Papers No. 1. <https://core.uni-mainz.de/core-working-papers/>

## Presentations (Selection)

- Banerjee, M., Zlatkin-Troitschanskaia, O., Schelle, C. & Kohmer, A. (2023, Nov 22-24). *Narrative Framing & Latent Meaning Structures of Online Information Used by Students in Their Critical Online Reasoning*. [paper presentation]. WERA Focal Meeting, Singapore.
- Baumartz, D. (2023, Sept 15). *Dispositionen, Strategien und Erfolg von Hochschulstudierenden im Umgang mit Online-Informationen – Projekt B05* [symposium presentation]. AEPF, Potsdam, Germany.
- Brückner, S., Küchemann, S., Weber, M. & Klose, V. (2023, Sept 15). *Dispositionen, Strategien und Erfolg von Hochschulstudierenden im Umgang mit Online-Informationen – Projekt C07* [symposium presentation]. AEPF, Potsdam, Germany.
- Fischer, J., Zlatkin-Troitschanskaia, O., Nagel, M.-T., Martin de los Santos Kleinz, L. & Maur, A. (2023, Apr 13-16). *Young Professionals' Evaluation and Fact-checking Regarding the Credibility of Online Information on Social Media*. [accepted presentation.] Annual Meeting of the American Educational Research Association (AERA), Chicago, USA.
- Fischer, J. & Zlatkin-Troitschanskaia, O., Laufer, A., Pöttsch, J. & Schumacher, J. (2023, Nov 22-24). *Use of Online Media for Student Learning in Higher Education – Insights from a Review of Current International Research* [paper presentation]. WERA Focal Meeting, Singapore.
- Fischer, J., Zlatkin-Troitschanskaia, O., Nagel, M.-T., Martin de los Santos Kleinz, L. & Maur, A. (2023, Apr 13-16). *Young Professionals' Evaluation and Fact-checking Regarding the Credibility of Online Information on Social Media*. [accepted presentation.] Annual Meeting of the American Educational Research Association (AERA), Chicago, USA.
- Frank, K., Zlatkin-Troitschanskaia, O., Reichert-Schlax, J., Dormann, C., & Brückner, S. (2023, Feb 28). *Online-Tools zur Förderung situationsspezifischer Kompetenzen (angehender) Lehrkräfte – Entwicklung und Evaluation* [poster presentation]. 10. Jahrestagung der Gesellschaft für empirische Bildungsforschung, Essen, Germany.
- Frank, K., Zlatkin-Troitschanskaia, O., Reichert-Schlax, J., Dormann, C., & Brückner, S. (2023, Aug 22-26). *Promoting Media-Didactic Skills through Multimedia Tools – Influencing Factors on Learning Success* [paper presentation]. European Association for Research on Learning and Instruction (EARLI), Thessaloniki, Greece.
- Kohmer, A., Klose, V., Nagel, M.-T., Fischer, J. & Martin de los Santos Kleinz, L. (2023, Nov 22-24). *Effects of Digital Training on "Critical Online Reasoning" among Young Professionals in Medicine: A Pre-Post-Study* [poster presentation]. WERA Focal Meeting, Singapore.



## Presentations (Selection)

- Liederbach, N., Reichert-Schlax, J., Zlatkin-Troitschanskaia, O., Frank, K., Schell, M., Brückner, S., & Dormann, C. (2023, Sept 6-8). *Digitale Kompetenzen und Einstellungen angehender Lehrkräfte zur Nutzung digitaler Lernmedien als Ausgangslage für digitale Lehre* [paper presentation]. Jahrestagung der DGfE – Sektion Berufs- und Wirtschaftspädagogik, Flensburg, Germany.
- Liederbach, N., Zlatkin-Troitschanskaia, O., Reichert-Schlax, J., Frank, K., Schell, M., Dormann, C., & Brückner, S. (2023, Sept 5-6). *Chancengerechtigkeit im Lehramtsstudium durch Digitalisierung: Ein kritischer Blick auf digitale Lehr-Lern-Interventionen und ihre Potentiale* [paper presentation]. BMBF-Tagung „Vielfalt und Chancengerechtigkeit in Studium und Wissenschaft: bekannte Fragen – bessere Antworten – bewährte Praxisansätze“, Berlin, Germany.
- Nagel, M.-T., Kohmer, A., Zlatkin-Troitschanskaia, O., Fischer, J., Maur, A. & Martin de los Santos Klein, L. (2023, Mar 1). *Die Fähigkeit zum kritischen Umgang mit Online-Informationen bei Lehramts-ReferendarInnen im Fach Wirtschaft und Studierenden der Wirtschaftspädagogik im Vergleich*. [presentation] Jahrestagung der Gesellschaft für Empirische Bildungsforschung (GEBF), Essen, Germany.
- Nagel, M.-T., Kohmer, A., Zlatkin-Troitschanskaia, O., Martin de los Santos Klein, L., Fischer, J. & Maur, A. (2023, Nov 22-24). *Development and Validation of a Critical Online Reasoning Assessment in Higher Education—An International Study*[Paper presentation]. WERA Focal Meeting, Singapore.
- Schell, M., Zlatkin-Troitschanskaia, O., Frank, K., Reichert-Schlax, J., Liederbach, N., Dormann, C., & Brückner, S. (2023, Sept 6-8). *Digitale Lehr-Lern-Tools zur Förderung handlungsnaher Kompetenzen angehender Lehrkräfte – Konzeption und Entwicklung* [poster presentation]. Jahrestagung der DGfE – Sektion Berufs- und Wirtschaftspädagogik, Flensburg, Germany
- Schelle, C. (2023, June 27). *The Role of Narrative Framing and Latent Meaning Structures of Online Information Used by Medical and Economics Students in their COR* [poster presentation]. Institutstag des Instituts für Erziehungswissenschaft der JGU, Mainz, Germany.
- Schelle, C. (Troitschanskaia, O., & Banerjee, M.) (2023, Sept 15). *Zur Rolle von narrativen Framings und latenten Bedeutungsstrukturen in Online Informationen und deren Verarbeitung – Potentiale eines innovativen Mixed-Method-Designs*[symposium presentation]. AEPF, Potsdam, Germany.
- Schelle, C. (Troitschanskaia, O., & Banerjee, M.) (2023, Oct 21). *Zum kritischen Umgang mit Internet-Informationen bei Studierenden—Potentiale eines innovativen methodenintegrativen Settings für die politische Bildung*. Arbeitskreis Politikunterrichtsforschung (GPJE), Dortmund, Germany.
- Zlatkin-Troitschanskaia, O. & Hartig, J. (2023, Sept 15). *Generische und fachspezifische Kompetenzen von Hochschulstudierenden im Umgang mit Online-Informationen - Erfassung und Entwicklung im Studium – Projekte A01 und A02* [symposium presentation]. AEPF, Potsdam, Germany.
- Zottmann, J. (2023, Sept 15). *Fachspezifische Kompetenzen von Hochschulstudierenden im Umgang mit Online-Informationen – Erfassung und Entwicklung im Studium – Projekt A03* [symposium presentation]. AEPF, Potsdam, Germany.



## In Memoriam



Prof. Dr. Uwe Schmidt

It is with great sorrow that we inform you of the passing of our dear colleague Uwe Schmidt. We were deeply saddened to learn that Uwe Schmidt lost his battle with a long and serious illness on Monday, December 18th, 2023. Our entire CORE community is in shock and mourning over the loss of this amazing and highly respected colleague. Despite his recent illness, Uwe Schmidt remained actively involved not just in PLATO and CORE, but in many other interdisciplinary projects too. His unwavering dedication was instrumental in the success of these endeavors. Furthermore, he always supported the cause of promoting young scientists with great enthusiasm. His untimely death is not only a personal loss but also a loss for the entire educational research community. We hope that the family and friends of Uwe Schmidt can find solace in knowing that his contributions enriched the lives of so many people and that his work will continue to influence the field for many years to come.

We will soon publish an obituary for Uwe Schmidt on our CORE and PLATO websites, and we invite everyone to share their fond memories of our beloved colleague.

## Happy Holidays!



Dear colleagues,

As 2023 comes to an end, we look back on the year with great appreciation for your support and our partnership with you. As we look to the next, we hope that this wonderful relationship continues, and that we see you once again at many events and conferences!

We wish you and your family a restful holiday season and a pleasant start to the new year in 2024.

Olga Troitschanskaia,  
Jenny Fischer, Dimitri Molerov  
and the PLATO-Team