

## **PLATO NEWSLETTER 01/2021**

Dear colleagues, at the beginning of the new year, we would like to inform you about the current progress in PLATO as well as the implementation of new projects. We look forward to further collaboration with you.



## **PLATO LAB**

In the PLATO Lab, implemented in 2020, further insights on students' information processing in digital environments using various performance assessments and eye-tracking were gathered. In 2021, we are continuing this work in several projects to gain deeper insight into how learners process online information and how they evaluate and select information from the wide range of sources available online.

<u>Read more</u>

## **Research Project 'BRIDGE'**

In 2020, the collaborative new interdisciplinary project BRIDGE was launched. BRIDGE focuses on performance assessment regarding the domain-specific and generic use of online media among young professionals in the domains of law, medicine and teaching (economics) in two German federal states. Funded by the German Federal Ministry of Education and Research (BMBF), BRIDGE investigates how the competent and effective use of online information develops in professional processes, and how it can be promoted trough digital training tools to support evidence-based decision-making and action in practice.





Deutsche Forschungsgemeinschaft

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**Research Unit 'CORE'** 

In 2020, a proposal for an interdisciplinary Research Unit was submitted to the German Research Foundation (DFG). The proposed research unit "Critical Online Reasoning in Higher Education ('CORE')" focuses on the skills students require for successful studying in higher education using the Internet as a major learning environment and source of information. Based on our strong preliminary research, CORE systematically and explicitly addresses current challenges of online learning in higher education by combining the strengths of various disciplinary approaches and applying qualitative and quantitative analyses to generate innovative integrative models, timely research findings, and a unique educational research dataset, which together provide a promising path for long-term research and development in higher education.

# **Research Training Group 'DIAPASON'**



The new interdisciplinary Research Training Group (GRK) DIAPASON "Digital Information Landscape and its Impact on Students' Online Learning" has been funded by the Gutenberg Council for Young Researchers at JGU Mainz since 2021. This year, five scholarships starting summer term 2021 will be awarded. DIAPASON focuses on the structural and semantic analysis of the online information landscape in which today's higher education students acquire a large amount of their domain-specific knowledge, and on its relationship with student learning in higher education economics and medicine.

### **Recent Publications**

#### **Special Issues**

In 2020, an new Research Topic "Assessing Information Processing and Online Reasoning as a Prerequisite for Learning in Higher Education" in Frontiers in Education, Frontiers in Psychology, and Frontiers in Computer Science was edited by Zlatkin-Troitschanskaia, O., Alexander, P., & Pellegrino, J. For more information and publications see <u>here.</u>

An new Special Issue "Learning Progression in Different Study Domains and Influences on Student Learning in Higher Education" in Studies in Higher Education, edited by Zlatkin-Troitschanskaia, O., Hartig, J., & Goldhammer, F. has been accepted and is in preparation for publication in Autumn 2021.

### Journal Articles in 2020

Banerjee, M., Zlatkin-Troitschanskaia, O., & Roeper, J. (2020). Narratives and their Impact on Students' Information Seeking and Critical Online Reasoning in Higher Education Economics and Medicine. *Frontiers in Education* (Vol. 5, p. 223). doi: 10.3389/feduc.2020.570625

Braun, H., Shavelson, R., Zlatkin-Troitschanskaia, O., & Borowiec, K. (2020). Performance Assessment of Critical Thinking: Conceptualization, Design and Implementation. *Frontiers in Education* (Vol. 5, p. 156). doi: 10.3389/feduc.2020.00156

Brückner, S., Schneider, J., Zlatkin-Troitschanskaia, O. & Drachsler, H. (2020). Epistemic Network Analyses of Economics Students' Graph Understanding: An Eye-Tracking Study. Sensors, 20(23), 6908. https://doi.org/10.3390/s20236908

Brückner, S., Zlatkin-Troitschanskaia, O., Küchemann, S., Klein, P., & Kuhn, J. (2020). Changes in Students' Understanding of and Visual Attention on Digitally Represented Graphs Across Two Domains in Higher Education: A Postreplication Study. *Frontiers in Psychology* (Vol. 11, p. 2090). doi: 10.3389/fpsyg.2020.02090

Hahnel, C., Eichmann, B., & Goldhammer, F. (2020). Evaluation of Online Information in University Students: Development and Scaling of the Screening Instrument EVON. *Frontiers in Psychology*, 11. doi: 10.3389/fpsyg.2020.562128

Hermkes, R., & Minnameier, G. (2020). Learning to fly through informational turbulence and taking a stand: The case of the minimum wage. *Frontiers in Education* (Vol. 5, p. 181). doi:10.3389/feduc.2020.573020

Lücking, A., Brückner, S., Abrami, G., Uslu, T., & Mehler, A. (2020). Computational linguistic assessment of textbook and online learning media by means of threshold concepts in business education. *Frontiers in Education*. doi: 10.3389/feduc.2020.578475

Mahlow, N., Hahnel, C., Kroehne, U., Artelt, C., Goldhammer, F., & Schoor, C. (2020). More Than (Single) Text Comprehension?–On University Students' Understanding of Multiple Documents. *Frontiers in Psychology*, 11. doi: 10.3389/fpsyg.2020.562450

Mehler, A., Hemati, W., Welke, P., Konca, M., & Uslu, T. (2020). Multiple Texts as a Limiting Factor in Online Learning: Quantifying (Dis-) similarities of Knowledge Networks. *Frontiers in Education*, 5. doi: 10.3389/feduc.2020.562670

Molerov, D., Zlatkin-Troitschanskaia, O., Nagel, M. T., Brückner, S., Schmidt, S., & Shavelson, R. (2020). Assessing University Students' Critical Online Reasoning Ability: A Conceptual and Assessment Framework with Preliminary Evidence. *Frontiers in Education* (Vol. 5, p. 258). doi: 10.3389/feduc.2020.577843

Nagel, M. T., Schäfer, S., Zlatkin-Troitschanskaia, O., Schemer, C., Maurer, M., Molerov, D., ... & Brückner, S. (2020). How Do University Students' Web Search Behavior, Website Characteristics, and the Interaction of Both Influence Students' Critical Online Reasoning?. *Frontiers in Education* (Vol. 5, p. 232). doi: 10.3389/feduc.2020.565062

Nagel, M.-T., Zlatkin-Troitschanskaia, O., Schmidt, S., & Beck, K. (2020). Perfor-mance Assessment of Generic and Domain-Specific Skills in Higher Education Eco-nomics. In O. Zlatkin-Troitschanskaia, H. A. Pant, M. Toepper & C. Lautenbach (Eds.), *Student Learning in German Higher Education: Innovative Measurement Approaches and Research Results* (p. 281–299). Wiesbaden: Springer VS. https://doi.org/10.1007/978-3-658-27886-1\_14

Roeper, J., Zlatkin-Troitschanskaia, O., Klose, V., Nagel, M.-T., & Schlax, J. (2020). A new approach to analyzing the development of domain-specific knowledge among undergraduate medical students using learning scores. *American Journal of Biomedical Science & Research*, 7(4), 319–323.

Schmidt, S., Zlatkin-Troitschanskaia, O., Roeper, J., Klose, V., Weber, M., Bültmann, A. K., & Brückner, S. (2020). Undergraduate Students' Critical Online Reasoning—Process Mining Analysis. *Frontiers in Psychology* (Vol. 11, p. 3301). doi: 10.3389/fpsyg.2020.576273

Wahlen, A., Kuhn, C., Zlatkin-Troitschanskaia, O., Gold, C., Zesch, T., & Horbach, A. (2020). Automated Scoring of Teachers' Pedagogical Content Knowledge - A Comparison between Human and Machine Scoring. Frontiers in Education, Section Assessment, Testing and Applied Measurement. https://doi.org/10.3389/feduc.2020.00149

Zlatkin-Troitschanskaia, O., Beck, K., Fischer, J., Braunheim, D., Schmidt, S., & Shavelson, R. J. (2020). The Role of Students' Beliefs When Critically Reasoning From Multiple Contradictory Sources of Information in Performance Assessments. *Frontiers in Psychology* (Vol. 11, p. 2192). doi: 10.3389/fpsyg.2020.02192

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