

Publications

Journal Articles with Strict Peer Review (by year)

2002-2008

Meier, A., Spada, H., & Rummel, N. (2007). A rating scheme for assessing the quality of computer-supported collaboration processes. *International Journal of Computer-Supported Collaborative Learning*, 2, 63-86.

Rummel, N., Ertl, B., Härder, J., & Spada, H. (2002). Supporting collaborative learning and problem-solving in desktop videoconference settings. *International Journal of Educational Policy, Research, and Practice*, 3(2), 83-115.

Rummel, N., Levin, J. R., & Woodward, M. M. (2003). Do pictorial mnemonic text-learning aids give students something worth writing about? *Journal of Educational Psychology*, 95(2), 327-334.

Rummel, N., & Spada, H. (2005). Learning to collaborate: An instructional approach to promoting collaborative problem-solving in computer-mediated settings. *Journal of the Learning Sciences*, 14(2), 201-241.

Spitulnik, M., Bouillion, L. M., Rummel, N., Clark, D., & Fischer, F. (2003). Collaborative online environments for lifelong learning: Design issues from a situated learning perspective. *International Journal of Educational Policy, Research, and Practice*, 4(1), 17-53.

2009

Rummel, N., Spada, H., & Hauser, S. (2009). Learning to collaborate from being scripted or from observing a model. *International Journal of Computer-Supported Collaborative Learning*, 4(1), 69-92.

Walker, E., Rummel, N., & Koedinger, K. (2009a). CTRL: A research framework for providing adaptive collaborative learning support. *User Modeling and User-Adapted Interaction: The Journal of Personalization Research (UMUAI)*, 19(5), 387-431.

Walker, E., Rummel, N., & Koedinger, K. (2009b). Integrating collaboration and intelligent tutoring data in evaluation of a reciprocal peer tutoring environment. *Research and Practice in Technology Enhanced Learning*, 4(3), 221-251.

2010

Braun, I. & Rummel, N. (2010). Facilitating learning from computer-supported inquiry: The challenge of directing learners' interactions to useful ends. *Research and Practice in Technology Enhanced Learning*, 5(3), 205-244.

Diziol, D., Walker, E., Rummel, N., & Koedinger, K. (2010). Using intelligent tutor technology to implement adaptive support for student collaboration. *Educational Psychology Review*, 22(1), 89-102.

Rummel, N., & Krämer, N. (2010). Computer-supported instructional communication. A multidisciplinary account of relevant factors. Introduction to the special issue. *Educational Psychology Review*, 22(1), 1-7.

Tsovaltzi, D., Rummel, N., McLaren, B., Pinkwart, N., Scheuer, O., Harrer, A., & Braun, I. (2010). Extending a virtual chemistry laboratory with a collaboration script to promote conceptual learning. *International Journal of Technology Enhanced Learning*, 2(1-2), 91-110.

Van Gog, T., & Rummel, N. (2010) Example-based learning: Integrating cognitive and social-cognitive research perspectives. *Educational Psychology Review*, 22(2), 155-174.

2011

Mullins, D., Rummel, N. & Spada, H. (2011). Are two heads always better than one? Differential effects of collaboration on students' computer-supported learning in mathematics. *International Journal of Computer Supported Collaborative Learning*, 6(3), 421-443. doi: 10.1007/s11412-011-9122-z

Walker, E., Rummel, N. & Koedinger, K. (2011). Designing automated adaptive support to improve student helping behaviors in a peer tutoring activity. *International Journal of Computer Supported Collaborative Learning*, 6(2), 279-306. doi: 10.1007/s11412-011-9111-2

2012

Kapur, M., & Rummel, N. (2012). Productive failure in learning from generation and invention activities [Editorial]. *Instructional Science*, 40(4), 645–650. <https://doi.org/10.1007/s11251-012-9235-4>

Rummel, N., Mullins, D. & Spada, H. (2012). Scripted collaborative learning with the Cognitive Tutor Algebra. *International Journal of Computer Supported Collaborative Learning*, 7(2), 307-339. doi:10.1007/s11412-012-9146-z

Westermann, K., & Rummel, N. (2012). Delaying instruction – Evidence from a study in a university relearning setting. *Instructional Science*, 40(4), 673-689. doi: 10.1007/s11251-012-9207-8

Wiedmann, M., Leach, R. C., Rummel, N., & Wiley, J. (2012). Does group composition affect learning by invention? *Instructional Science*, 40 (4) 711-730. doi: 10.1007/s11251-012-9204-y

2013

Deiglmayr, A., Paus, L., McCade, C., Mullins, D., Berthold, K., Wittwer, J., Krämer, N. & Rummel, N. (2013). Towards an integration of the learning perspective and the communication perspective in computer-supported instructional communication. *Journal of Media Psychology*, 25 (4), 180-189. doi: 10.1027/1864-1105/a000101

Plesch, Ch., Kaendler, C., Rummel, N., Wiedmann, M. & Spada, H. (2013). Identifying areas of tension in the field of technology-enhanced learning: Results of an international delphi study. *Computers & Education*, 65, 92-105. <http://dx.doi.org/10.1016/j.compedu.2013.01.018>

Rau, M. A., Aleven, V., & Rummel, N. (2013). Interleaved practice in multi-dimensional learning tasks: which dimension should we interleave? *Learning and Instruction*, 23, 98-114. doi: dx.doi.org/10.1016/j.learninstruc.2012.07.003

Wichmann, A. & Rummel, N. (2013). Improving revision in wiki-based writing: Coordination pays off. *Computers & Education*, 62, 262-270. doi: [10.1016/j.compedu.2012.10.017](http://dx.doi.org/10.1016/j.compedu.2012.10.017)

2014

Loibl, K. & Rummel, N. (2014a). Knowing what you don't know makes failure productive. *Learning and Instruction*, 34, 74-85. <https://doi.org/10.1016/j.learninstruc.2014.08.004>

Loibl, K. & Rummel, N. (2014b). The impact of guidance during problem-solving prior to instruction on students' inventions and learning outcomes. *Instructional Science*, 42(3), 305-236. doi: [10.1007/s11251-013-9282-5](http://dx.doi.org/10.1007/s11251-013-9282-5)

Rau, M. A., Aleven, V., Rummel, N. & Pardos, Z. (2014). How should intelligent tutoring systems sequence multiple graphical representations of fractions? A multi-methods study. *International Journal of Artificial Intelligence in Education*, 24(2), 125-161. doi: [10.1007/s40593-013-0011-7](http://dx.doi.org/10.1007/s40593-013-0011-7)

Walker, E., Rummel, N. & Koedinger, K. (2014). Adaptive intelligent support to improve peer tutoring in Algebra. *International Journal of Artificial Intelligence in Education*, 24(1), 33-61. doi: [10.1007/s40593-013-0001-9](http://dx.doi.org/10.1007/s40593-013-0001-9)

2015

Kaendler, C., Wiedmann, M., Rummel, N., & Spada, H. (2015). Teacher competencies for the implementation of collaborative learning in the classroom: A framework and research review. *Educational Psychology Review*, 27(3), 505-536. doi: [10.1007/s10648-014-9288-9](http://dx.doi.org/10.1007/s10648-014-9288-9)

Loibl, K. & Rummel, N. (2015). Productive failure as a strategy against the double curse of incompetence. *Learning: Research and Practice*, 1(2), 113-121. doi: [10.1080/23735082.2015.1071231](http://dx.doi.org/10.1080/23735082.2015.1071231)

Rau, M. A., Aleven, V., Rummel, N. (2015). Successful learning with multiple graphical representations and self-explanation prompts. *Journal of Educational Psychology*, 107(1), 30-46. doi: <http://dx.doi.org/10.1037/a0037211>

2016

Kaendler, C., Wiedmann, M., Leuders, T., Rummel, N., & Spada, H. (2016). Monitoring student interaction during collaborative learning: Design and evaluation of a training program for pre-service teachers. *Psychology: Learning & Teaching*, 5(1) 44–64. doi: [10.1177/1475725716638010](http://dx.doi.org/10.1177/1475725716638010)

Rummel, N., Walker, E. & Aleven, V. (2016). Different futures of adaptive collaborative learning support. *Journal of Artificial Intelligence in Education*, 26(2), 784-795. doi: 10.1007/s40593-016-0102-3

2017

Grawemeyer, B, Mavrikis, M, Holmes, W, Gutiérrez-Santos, S, Wiedmann, M, Rummel, N (2017) Affective learning: improving engagement and enhancing learning with affect-aware feedback. *User Modeling and User-Adapted Interaction*, 27(1), 119–158. doi: 10.1007/s11257-017-9188-z

Olsen, J.K., Aleven, V., & Rummel, N. (2017). Statistically modeling individual students' learning over successive collaborative practice opportunities. *Journal of Educational Measurement*, 54 (1), 123–138. doi: 10.1111/jedm.12137

Loibl, K., Roll, I. & Rummel, N. (2017). Towards a theory of when and how problem solving followed by instruction supports learning. *Educational Psychology Review*, 29(4), 693-715. doi: 10.1007/s10648-016-9379-x

Rau, M. A., Aleven, V., & Rummel, N. (2017a). Making connections between multiple graphical representations of fractions: Conceptual understanding facilitates perceptual fluency, but not vice versa. *Instructional Science*, 45(3), 331-357. doi: 10.1007/s11251-017-9403-7

Rau, M. A., Aleven, V., & Rummel, N. (2017b). Supporting students in making sense of connections and in becoming perceptually fluent in making connections among multiple graphical representations. *Journal of Educational Psychology*, 109(3), 355-373. doi: 10.1037/edu0000145

Van Leeuwen, A., Van Wermeskerken, M., Erkens, G., & Rummel, N. (2017). Measuring teacher sense making strategies of learning analytics: a case study. *Learning: Research and Practice*, 3(1), 42-58. doi:10.1080/23735082.2017.1284252

2018

Nachtigall, V., Rummel, N., & Serova, K. (2018): Authentisch ist nicht gleich authentisch – Wie Schülerinnen und Schüler die Authentizität von Lernaktivitäten im Schülerlabor einschätzen. *Unterrichtswissenschaft* 46(3), 299-319. DOI: 10.1007/s42010-018-0020-1

Rummel, N. (2018). One framework to rule them all? Carrying forward the conversation started by Wise and Schwarz. *International Journal of Computer-Supported Collaborative Learning*, 13(1), 123-129. doi: 10.1007/s11412-018-9273-2

Sommer, K., Wirth, J. & Rummel, N. (2018). Authentizität der Wissenschaftsvermittlung im Schülerlabor – Einführung in den Thementeil. *Unterrichtswissenschaft*, 46, 253–260.

Wichmann, A., Funk, A., Rummel, N. (2018). Leveraging the potential of peer feedback in an academic writing activity through sense-making support. *European Journal of Psychology of Education*, 33(1), 165-184. doi: 10.1007/s10212-017-0348-7

2019

Mazziotti, C., Rummel, N., Deiglmayr, A. & Loibl, K. (2019). Probing boundary conditions of Productive Failure and analyzing the role of young students' collaboration. *npj Science of Learning*, 4(2), 1-9. doi: 10.1038/s41539-019-0041-5

Olsen, J.K., Rummel, N. & Aleven, V. (2019). It is not either or: An initial investigation into combining collaborative and individual learning using an ITS. *International Journal of Computer-Supported Collaborative Learning*, 14, 353–381. doi:10.1007/s11412-019-09307-0

Van Leeuwen, A., & Rummel, N. (2019). Kooperative Unterrichtsettings: Technologische Tools zur Unterstützung von Lehrkräften. *Unterrichtswissenschaft*, 47(2), 137–141. doi:10.1007/s42010-019-00051-w

Van Leeuwen, A., & Rummel, N. (2019). Orchestration tools to support the teacher during student collaboration: a review. *Unterrichtswissenschaft*, 47(2), 143-158. doi:10.1007/s42010-019-00052-9

Van Leeuwen, A., Rummel, N., & Van Gog, T. (2019). What information should CSCL teacher dashboards provide to help teachers interpret CSCL situations? *International Journal of Computer-Supported Collaborative Learning*, 14, 261–289. doi:10.1007/s11412-019-09299-x

2020

Hartmann, C., Van Gog, T., & Rummel, N. (2020). Do examples of failure effectively prepare students for learning from subsequent instruction? *Applied Cognitive Psychology*, 34(4), 879-889. <https://doi.org/10.1002/acp.3651>

Loibl, K., Tillema, M., Rummel, N. & van Gog, T. (2020). The effect of contrasting cases during problem solving prior to and after instruction. *Instructional Science*, 48, 115-136. doi: 10.1007/s11251-020-09504-7

Nachtigall, V., Serova, K., & Rummel, N. (2020). When failure fails to be productive: probing the effectiveness of productive failure for learning beyond STEM domains. *Instructional Science*, 48(6), 651-697. <https://doi.org/10.1007/s11251-020-09525-2>

Olsen, J.K., Sharma, K., Rummel, N., & Aleven, V. (2020). Temporal analysis of multimodal data to predict collaborative learning outcomes. *British Journal of Educational Technology*, 51(5), 1527-1547. <http://dx.doi.org/10.1111/bjet.12982>

Sharma, K., Olsen, J. K., Aleven, V., & Rummel, N. (2020). Measuring causality between collaborative and individual gaze metrics for collaborative problem solving with intelligent tutoring systems. *Journal of Computer Assisted Learning*, 37, 51– 68. <https://doi.org/10.1111/jcal.12467>

Strauß, S. and Rummel, N. (2020). Promoting interaction in online distance education: Designing, implementing and supporting collaborative learning. *Information and Learning Sciences*, 121 (5/6), pp. 251-260. <https://doi.org/10.1108/ILS-04-2020-0090>

2021

Hagenkötter, R., Nachtigall, V., Rolka, K., & Rummel, N. (2021). „Meistens sind Forscher älter, meist tragen die eine Brille“ – Schülervorstellungen über Wissenschaftler*innen. *Unterrichtswissenschaft*, 49, 603–626. <https://doi.org/10.1007/s42010-021-00110-1>

Hartmann, C., van Gog, T., & Rummel, N. (2021). Preparatory effects of problem solving versus studying examples prior to instruction. *Instructional Science*, 49, 1-21. <https://doi.org/10.1007/s11251-020-09528-z>

Olsen, J.K., Rummel, N., & Aleven, V. (2021). Designing for the co-orchestration of social transitions between individual, small-group and whole-class learning in the classroom. *International Journal of Artificial Intelligence in Education*, 31, 24-56.

Nachtigall, V. & Rummel, N. (2021). Investigating students' perceived authenticity of learning activities in an out-of-school lab for social sciences: a replication study. *Instructional Science*, 49, 779-810. <https://doi.org/10.1007/s11251-021-09556-3>

Strauß, S., Rummel, N. (2021). Promoting regulation of equal participation in online collaboration by combining a group awareness tool and adaptive prompts. But does it even matter? *International Journal of Computer-Supported Collaborative Learning*, 16, 67–104. <https://doi.org/10.1007/s11412-021-09340-y>

Van Leeuwen, A., Knoop-van Campen, C. A. N., Molenaar, I., & Rummel, N. (2021). How teacher characteristics relate to how teachers use dashboards: Results from two case studies in K–12. *Journal of Learning Analytics*, 8(2), 110–124. <http://doi.org/10.18608/jla.2021.7118>

2022

Erdmann, J., & Rummel, N. (2022). The role of spontaneous recovery effects in the context of German orthography instruction methods with delayed correction. *Journal of Experimental Psychology: Applied*, 28(1), 130–146. <https://doi.org/10.1037/xap0000377>

Hartmann, C., Rummel, N., & Bannert, M. (2022). Using HeuristicsMiner to Analyze Problem-Solving Processes: Exemplary Use Case of a Productive-Failure Study. *Journal of Learning Analytics*, 1-21. <https://doi.org/10.18608/jla.2022.7363>

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Nachtigall, V., Shaffer, D.W., & Rummel, N. (2022). Stirring a Secret Sauce: A Literature Review on the Conditions and Effects of Authentic Learning. *Educational Psychology Review*. 34, 1479–1516. <https://doi.org/10.1007/s10648-022-09676-3>

Nachtigall V.*, Yek, S.*, Lewers, E., Bunnenberg, C., & Rummel, N. (2022). Fostering cognitive strategies for learning with 360° videos in history education contexts. *Unterrichtswissenschaft*. 50, 615 - 638, <https://doi.org/10.1007/s42010-022-00154-x> (*shared first-authorship)

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2023

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Echeverria, V., Yang, K., Lawrence, L., Rummel, N. & Aleven, V. (2023). Designing hybrid human-AI orchestration tools for individual and collaborative activities: A Technology probe study. *IEEE Transactions on Learning Technologies*, 16(2), 191–205. <https://doi.org/10.1109/tlt.2023.3248155>

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<https://doi.org/10.3389/frai.2023.1039739>

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<https://dl.acm.org/doi/abs/10.1145/3577198>

2024

Eberle, J., Strauß, S., Nachtigall, V., & Rummel, N. (2024). Analyse prozessbezogener Verhaltensdaten mittels Learning Analytics: Aktuelle und zukünftige Bedeutung für die Unterrichtswissenschaft. *Unterrichtswissenschaft*, 52(2), 213–225.
<https://doi.org/10.1007/s42010-024-00205-5>

Hagenkötter, R., Nachtigall, V., Rolka, K., & Rummel, N. (2024). Model authenticity in learning mathematical hands-on experimentation: how students perceive and learn from scientist and peer models. *European Journal of Psychology of Education*, 39, 3301–3324.
<https://doi.org/10.1007/s10212-024-00843-4>

Karademir, O., Borgards, L., Di Mitri, D., Strauß, S., Kubsch, M., Brobeil, M., Grimm, A., Gombert, S., Rummel, N., Neumann, K., & Drachsler, H. (2024). Following the impact chain of the LA cockpit: An intervention study investigating a teacher dashboard's effect on student learning. *Journal of Learning Analytics*, 11(2), 215-228.
<https://doi.org/10.18608/jla.2024.8399>

Loibl, K., Leuders, T., & Glogger-Frey, I. Rummel, N. (2024). CID: a framework for the cognitive analysis of composite instructional designs. *Instructional Science*.
<https://doi.org/10.1007/s11251-024-09665-9>

Nachtigall, V., Shaffer, D. W., & Rummel, N. (2024). The authenticity dilemma: towards a theory on the conditions and effects of authentic learning. *European Journal of Psychology of Education*, 39, 3483–3509. <https://doi.org/10.1007/s10212-024-00892-9>

Nachtigall, V., Yek, S., & Rummel, N. (2024). Improving students' processing of history-related 360° videos through collaboration and emotion regulation. *Journal of Computer Assisted Learning*, 1–22. <https://doi.org/10.1111/jcal.13076>

Strauß, S., Tunnigkeit, I., Eberle, J., Avdullahu, A., & Rummel, N. (2024). Comparing the effects of a collaboration script and collaborative reflection on promoting knowledge about good collaboration and effective interaction. *International Journal of Computer-Supported Collaborative Learning*. <https://doi.org/10.1007/s11412-024-09430-7>

Teich, K., Looock, V. & Rummel, N. (2024). Meeting the challenges of continuing education online courses: Can we promote self-regulated learning strategies with adaptive support? *British Journal of Educational Technology*. 55(4), 1437-1455.
<https://doi.org/10.18608/jla.2024.8399>

2025 and in press

Brand, C., Hartmann, C., Loibl, K. & Rummel, N. (2025). Investigating learner characteristics and processes in productive failure and vicarious failure to design adaptive guidance. *Learning and Instruction*, 95. <https://doi.org/10.1016/j.learninstruc.2024.102052>

Radtke, A. & Rummel, N. (2025). Generative AI in academic writing: Does information on authorship impact learners' revision behavior? *Computers and Education: Artificial Intelligence*, 8, Article 100350. <https://doi.org/10.1016/j.caeai.2024.100350>

Further Journal Articles

Becker, S., Wiesen, C., Paar, C., & Rummel, N. (2019). Wie arbeiten Reverse Engineers?. *Datenschutz und Datensicherheit-DuD*, 43(11), 686-690. <https://doi.org/10.1007/s11623-019-1190-7>

Rummel, N., Diziol, D. & Westermann, K. (2010). Kooperative Lernformen im Mathematikunterricht. *Praxis der Mathematik*, 35(5), 25-29.

Strauß, S. & Rummel, N. (2019). Online-gestützte Hochschullehre. Gestaltung von Maßnahmen für virtuelle Kleingruppenarbeit. *Weiterbildung*, 6, 36-39.

Westermann, K. & Rummel, N. (2010). Kooperatives Lernen in der Hochschulmathematik: Eine experimentelle Studie. *Mitteilungen der Deutschen Mathematikervereinigung*, 18(4) 240-243. <https://doi.org/10.1515/dmvm-2010-0098>

Books/ Edited Volumes

Rummel, N., Kapur, M., Nathan M., & Puntambekar, S. (Eds.) (2013a). To See the World and a Grain of Sand: Learning across Levels of Space, Time, and Scale: CSCL 2013 *Conference Proceedings Volume 1 — Full Papers & Symposia*. International Society of the Learning Sciences, Inc.

Rummel, N., Kapur, M., Nathan M., & Puntambekar, S. (Eds.) (2013b). To See the World and a Grain of Sand: Learning across Levels of Space, Time, and Scale: CSCL 2013 *Conference Proceedings Volume 2 — Short Papers, Panels, Posters, Demos & Community Events*. International Society of the Learning Sciences, Inc.

Wichmann, A. Hoppe, H. U. & Rummel, N. (Eds.). (2021). Reflecting the Past and Embracing the Future. *General Proceedings of the 1st Annual Meeting of the International Society of the Learning Sciences 2021*. Bochum, Germany: International Society of the Learning Sciences.

Book Chapters (by year)

Rummel, N., & Spada, H. (2005). Instructional support for collaboration in desktop videoconference settings: How it can be achieved and assessed. In R. Bromme, F. W. Hesse

& H. Spada (Eds.), *Barriers and biases in computer-mediated knowledge communication and how they may be overcome* (pp. 59-88). New York: Springer.

Spada, H., Rummel, N. & Ernst, A. (2006). Lernen. In H. Spada (Hrsg.), *Allgemeine Psychologie* (pp. 343-434). Bern: Huber.

Hauser, S., Spada, H., Rummel, N. & Meier, A. (2007). Kooperation über räumliche und fachliche Grenzen hinweg – Probleme und Lösungsmöglichkeiten. In Schneider, G., Couné, B., Gayer, C., Vögele, E. & Weber, Ch. (Hrsg.), *Neue Medien als strategische Schrittmacher an der Universität Freiburg* (S. 355-364). Freiburg: Universitätsbibliothek.

Rummel, N., & Spada, H. (2007). Can people learn computer-mediated collaboration by following a script? In F. Fischer, I. Kollar, H. Mandl & J. Haake (Eds.), *Scripting computer-supported communication of knowledge. Cognitive, computational, and educational perspectives* (pp. 39-55). New York: Springer.

Rummel, N. (2008). Medienpsychologische Aspekte der sozial-kognitiven Lerntheorie. In N. Krämer, S. Schwan, D. Unz & M. Suckfüll (Hrsg.), *Medienpsychologie: Schlüsselbegriffe und Konzepte* (S.264-268). Stuttgart: Kohlhammer.

Rummel, N., & Meier, A. (2008). Common Ground und Grounding. In N. Krämer, S. Schwan, D. Unz & M. Suckfüll (Hrsg.), *Medienpsychologie: Schlüsselbegriffe und Konzepte* (S. 329-335). Stuttgart: Kohlhammer.

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Diziol, D., & Rummel, N. (2010). How to design support for collaborative e-learning: A framework of relevant dimensions. In B. Ertl (Ed.), *E-Collaborative knowledge construction: Learning from computer-supported and virtual environments* (pp. 162-179). Hershey, PA: IGI Global.

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Strauß, S., Tunnigkeit, I., Eberle, J., vom Bovert, L. F., Avdullahu, A., Schmittchen, M., & Rummel, N. (2023). Differential effects of a script and a group awareness tool on the acquisition of collaboration skills. In Damşa, C., Borge, M., Koh, E., & Worsley, M. (Eds.), *Proceedings of the 16th International Conference on Computer-Supported Collaborative Learning - CSCL 2023* (pp. 75–82). International Society of the Learning Sciences.
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Teich, K., Looock V. & Rummel, N. (2024). User-centered design of adaptive support in a continuing education online course: Findings from a design-based research process. In P. Zaphiris & A. Ioannou (Eds.), *Learning and Collaboration Technologies (LCT 2024). Lecture Notes in Computer Science Part I* (Vol.14722, pp. 103–123). Springer. https://doi.org/10.1007/978-3-031-61672-3_8

Walendy, R., Weber, M., Li, J., Becker, S., Wiesen, C., Elson, M., Kim, Y., Fawaz, K., Rummel, N., & Paar, C. (2024). I see an IC: A mixed-methods approach to study human problem-solving processes in hardware reverse engineering. In F. F. Mueller, P. Kyburz, J. R. Williamson, C. Sas, M. L. Wilson, P. T. Dugas & I. Shklovski (Eds.), *Proceedings of the Conference on Human Factors in Computing Systems (CHI '24)* (pp. 1-20). Machinery. <https://doi.org/10.1145/3613904.3642837>

Yang, K. B., Borchers, C., Falhs, A.-C., Echeverria, V., Karumbaiah, S., Rummel, N., & Aleven, V. (2024). Leveraging multimodal classroom data for teacher reflection: Teachers' preferences, practices, and privacy considerations. In R. Ferreira Mello, N. Rummel, I. Jivet, G. Pishtari & J.A. Ruipérez Valiente (Eds.), *Technology Enhanced Learning for Inclusive and Equitable Quality Education. 19th European Conference on Technology Enhanced Learning (EC-TEL 2024), Lecture Notes in Computer Science, Part II* (Vol. 15159, pp. 498-511). Springer. https://doi.org/10.1007/978-3-031-72315-5_34

Further Conference Contributions

In addition to contributing to conferences with strict peer review and published proceedings, I actively and regularly present my work at relevant national and international conferences, such as: Tagung der Gesellschaft für Empirische Bildungsforschung (GEBF), Kongress der Deutschen Gesellschaft für Psychologie (DGPs); Fachgruppentagungen Pädagogische Psychologie und Medienpsychologie der DGPs; European Conference for Research on Learning and Instruction (EARLI); Conference of the American Educational Research

Association (AERA). These conferences only publish the title of the accepted presentations or an abstract in their conference programme, but do not have proceedings.

Invited Talks and Keynotes

- 09/2024 Invited keynote at EARLI SIG 16 Conference on Metacognition and Self-Regulated Learning, Heidelberg, Germany
- 05/2024 Invited talk at the Center of Interdisciplinary Research on Digital Education, Pädagogische Hochschule, Freiburg, Germany.
- 05/2024 Invited talk at the Akademie für Wissenschaft, Wirtschaft und Technik an der Universität Ulm, Ulm, Germany.
- 06/2023 Invited plenary keynote at ISLS 2023 Annual Meeting, Toronto, Canada
- 05/2023 Invited speaker at 2023 Jacobs Foundation Conference, Cascais, Portugal
- 05/2023 Invited talk at the Center of Advanced Technology for Assisted Learning and Predictive Analytics, FernUniversität Hagen, Germany
- 05/2023 Invited talk at the “Fachtagung digital gestütztes Lehren und Lernen im Fachunterricht – Wissenschaft und Praxis im Dialog“, University of Education, Freiburg, Germany
- 05/2022 Invited keynote at GenZ Talks seminar, University of Oulu, Finland
- 10/2021 Invited talk at the Latsis Symposium 2021 STEM: Boosting hidden potentials, Eidgenössische Technische Hochschule (ETH) Zürich, Schweiz
- 01/2021 Invited keynote at the PULSE (Partnerships to Upscale the Learning Sciences in Europe) Symposium, University of Twente, NL – held as online event
- 08/2019 Invited keynote at the 18th Biennial Conference of the European Association for Research on Learning and Instruction (EARLI), Aachen, Germany
- 11/2018 Invited plenary keynote at the Teaching for Active Learning (TAL) 2018 Conference, University of Southern Denmark (Odense)
- 03/2018 Invited talk at the BrainCafé of the DFG Collaborative Research Centre 874 (Integration and Representation of Sensory Processes)
- 11/2017 Invited talk at the UCL Knowledge Lab of the University College London, UK
- 04/2017 Invited plenary keynote at the 9th International Conference on Computer Supported Education (CSEDU 2017), Oporto, Portugal
- 11/2016 Invited plenary keynote at the International Conference of Computers in Education, Indian Institute of Technology (IIT) Bombay, Mumbai, India
- 09/2016 Invited talk at the Workshop Learning Analytics at the DeLFI Conference (Annual Conference of the SIG E-Learning of the German Informatics Society)
- 04/2014 Invited talk at the Learning Sciences Lab at the National Institute of Education at Nanyang Technological University, Singapore
- 02/2010 Invited talk at the National Institute of Education at Nanyang Technological University, Singapore
- 11/2009 Invited plenary keynote at the “Alpine Rendezvous” Conference of the EU Network of Excellence (NoE) STELLAR, Garmisch-Patenkirchen, Germany
- 03/2004 Invited talk Pennsylvania State University, USA

03/2004 Invited talk Human Computer Interaction Institute, Carnegie Mellon University, Pittsburgh, USA

Science Transfer Output (Podcasts, Blog contributions, Talks at transfer events, Policy Engagement)

Rummel, N., Falhs, A.-C., Wichmann, A., & Aleven, V. (2024). Schule in der Kultur der Digitalität – digitale Bildungstechnologie und Künstliche Intelligenz im Unterrichtsprozess und im Rahmen individueller Förderung. Forschungsgutachten zur Vorlage bei der Enquetekommission I „Chancengleichheit in der Bildung“ des Landtags Nordrhein-Westfalen.

Rummel, N. (2024, November 20). Künstliche Intelligenz in der Bildung: Möglichkeiten, Chancen und eine kritische Diskussion [Talk]. BI.teach – Tag für die Lehre 2024)

Rummel, N. (2024, September 4.). Invited Speaker at Panel "AI for Future Generations?", AI24 The Lamarr Conference (Dortmund)

Rummel, N. (2024, September 2). Invited talk "Dynamische Wechsel zwischen individuellem und kooperativen Lernen im Klassenzimmer ermöglichen: Ergebnisse aus einem drei (fünf) jährigen NSF-Projekt zur Ko-Orchestrierung durch KI und Lehrkraft", Fachtagung KI Bildung und Künstliche Intelligenz 2024 (2. September), Zentrum für Schulqualität und Lehrerbildung Baden-Württemberg (Esslingen)

Löffler, M. (Host) (2024, August 01). #2 KI im Klassenzimmer: Wie Technologie Lehrkräfte bei dynamischen Übergängen im Unterricht unterstützen kann (No. 2) [Audio podcast episode]. In CIRDE - Forschung zu digitaler Bildung - Guest: Prof. Dr. Nikol Rummel.

Stein, M. (Host) (2024, July 11), Folge 1, Staffel 5 „Bildungstechnologien und künstliche Intelligenz“ : Ein Gespräch mit Frau Prof. Dr. Rummel und Herrn Prof. Dr. Wiskott über klassische künstliche Systeme und künstliche neuronale Netze [Audio podcast episode]. In Podcast Zukunftsforum Weiterbildung, QUA-LIS NRW

Rummel, N. (2024, February 6). Invited Speaker at OECD Online Webinar "Decoding the hype: Can AI help create accessible and inclusive student learning?"

Rummel, N. (2023, März). Supporting the regulation of groups in online settings: Typical challenges during collaboration when leveraging group awareness Information. Zukunftsforum Weiterbildung – Panel "Bildungstechnologien & Künstliche Intelligenz, QUA-LiS NRW, held as online event.

Begenat, M. (Host) (2023, June 30) Folge 14: Was macht die KI im Klassenzimmer? Von der Forschung über Bildungstechnologien. In CAISzeit – Der Podcast – Zu Gast: Prof. Dr. Nikol Rummel und Dr. Sebastian Strauß

Falhs, A.-C., Wichmann, A. & Rummel, N. (2023, September 27). LAMARR Institute for Machine Learning and Artificial Intelligence. Blog-Beitrag: Lernpfade (digital) begleiten: Intelligente Tutorielle Systeme

Rummel, N. (2023, November 29). Panel: Maschinelles trifft menschliches Lernen – auf dem Weg zu einer „Intelligenten Bildung, Vortrag bei der KMK-Fachtagung “KI in Bildungsprozessen.”

Research Group Educational Technologies and Artificial Intelligence (2022, August 31). LAMARR Institute for Machine Learning and Artificial Intelligence. Blog-Beitrag: Wie wird KI Schulen und Bildungseinrichtungen verändern?[Audio podcast episode].

Appearances in media outlets, including DPA, WAZ & ARD