

Publikationsliste

Publikationen in Fachzeitschriften & Sammelbänden (peer reviewed)

- Hartmann, C., Kosel, C., Wolf, A., & Bannert, M. (2026). Seeing the whole picture? An experiment on environmental detail and coherence formation in immersive virtual reality. *Computers & Education: X Reality*, 8, 100130. <https://doi.org/10.1016/j.cexr.2025.100130>
- 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, Volume 95*, 2025, 102052. <https://doi.org/10.1016/j.learninstruc.2024.102052>
- Braas, T. C., Hartmann, C., Hoogerheide, V., Rummel, N., & Van Gog, T. (2025). When is observing failure productive? Investigating the role of solution diversity in vicarious failure. *Instructional Science*. <https://doi.org/10.1007/s11251-025-09706-x>
- Olea-Ibarra, D., Hartmann, C., & Bannert, M. (2025). The Role of Enjoyment and Epistemic Emotions in Middle School AR Learning: A Quasi-Experimental Field Study. *Journal of Computer Assisted Learning*, 41(2), <https://doi.org/10.1111/jcal.70016>
- Bewersdorff, A., Hartmann, C., Hornberger, M., Seßler, K., Bannert, M., Kasneci, E., ... & Nerdel, C. (2025). Taking the Next Step with Generative Artificial Intelligence: The Transformative Role of Multimodal Large Language Models in Science Education, *Learning and Individual Differences*, 118. <https://doi.org/10.1016/j.lindif.2024.102601>
- Kosel, C., Grub, A.S., Hartmann, C. & Seidel, T. (2024). Editorial: Advancing research on teachers' professional vision: implementing novel technologies, methods and theories. *Front. Educ.* 9:1454622. <https://doi.org/10.3389/educ.2024.1454622>
- Pflieger, L.C.J., Hartmann, C., & Bannert, M. (2024). Enhancing knowledge construction in emerging technologies: the role of Imagination training in immersive virtual reality environments. *Discover Education*, 3(65). <https://doi.org/10.1007/s44217-024-00154-2>
- Hartmann, C., Orli-Idrissi, Y., Pflieger, L.C.J., & Bannert, M. (2023). Imagine & Immerse Yourself: Does visuospatial imagery moderate learning in virtual reality? *Computers & Education*, 104909. <https://doi.org/10.1016/j.compedu.2023.104909>
- Brand, C., Hartmann, C., Loibl, K., & Rummel, N. (2023). Do students learn more from failing alone or in groups? Insights into the effects of collaborative versus individual problem solving in productive failure. *Instructional Science*, 51, 953–976. <https://doi.org/10.1007/s11251-023-09619-7>
- Tangocci, E., Hartmann, C. & Bannert, M. (2023). Immersives Lernen in der Berufsschule. Fördert VR- und AR-Technologie das Lernen, die intrinsische Motivation und die Technologieakzeptanz von lernbeeinträchtigten Auszubildenden?. *MedienPädagogik*, 51 (AR/VR - Part 2), 268–289. <https://doi.org/10.21240/mpaed/51/2023.01.21.X>
- Hartmann, C., van Gog, T., & Rummel, N. (2022). Productive versus vicarious failure: Do students need to fail themselves in order to learn? *Applied Cognitive Psychology*, 1–15. <https://doi.org/10.1002/acp.4004>
- 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*, 9(2), 66–86. <https://doi.org/10.18608/jla.2022.7363>
- Hartmann, C., & Bannert, M. (2022). Lernen in virtuellen Räumen. Konzeptuelle Grundlagen und Implikationen für künftige Forschung. *MedienPädagogik*, 47 (AR/VR – Part 1), 92–110. <https://doi.org/10.21240/mpaed/47/2022.04.18.X>
- Hartmann, C., van Gog, T., & Rummel, N. (2021). Preparatory effects of problem solving versus studying examples prior to instruction. *Instructional Science*, 49(1), 1–21. <https://doi.org/10.1007/s11251-020-09528-z>
- Hartmann, C., van Gog, T., & Rummel, N. (2020). Do examples of failure effectively prepare students for learning from subsequent instruction? *Applied Cognitive Psychology*, 34, 879–889. <https://doi.org/10.1002/acp.3651>
- Weinberger A., Hartmann, C., Schmitt L. J., Rummel N. (2018) Computer-unterstützte kooperative Lernszenarien. In: Niegemann H., Weinberger A. (Eds.) *Lernen mit Bildungstechnologien*. Springer, Berlin, Heidelberg. https://doi.org/10.1007/978-3-662-54368-9_20

Publikationen in Tagungsbänden inkl. Konferenzvortrag (peer reviewed)

- Hartmann, C., Kosel, C., Seidel, T., & Bannert, M. (2025). How do learners form coherence between environmental details and verbal information in virtual reality environments? In *Annual Meeting of the American Educational Research Association (AERA) i-Presentation Gallery*, Denver, CO, United States: American Educational Research Association. <https://doi.org/10.3102/IP.25.2193205>
- Pflieger, L.C.J., Hartmann, C., & Bannert, M. (2023). VRMeta-REG tool to support students' collaboration in social VR. In *Companion Proceedings of the 33rd International Conference on Artificial Reality and Telexistence and the 28th Eurographics Symposium on Virtual Environments (ICAT-EGVE 2023)*. <https://doi.org/10.2312/egve.20231331>
- Brand, C., Hartmann, C., Loibl, K., & Rummel, N. (2021). Observing or Generating Solution Attempts in Problem Solving Prior to Instruction: Are the Preparatory Processes Comparable? In E. de Vries, J. Ahn, & Y.Hod (Eds.), *15th International Conference of the Learning Sciences – ICLS 2021* (pp. 115-122). International Society of the Learning Sciences, 2021.
- Brand, C., Hartmann, C., & Rummel, N. (2018). Exploring Relevant Problem-Solving Processes in Learning From Productive Failure. In: Kay, J. and Luckin, R. (Eds.). *Rethinking Learning in the Digital Age: Making the Learning Sciences Count*, 13th

International Conference of the Learning Sciences (ICLS), Volume 3 (p. 1125-1128). London, UK: International Society of the Learning Sciences.

- Hartmann, C., Rummel, N., & Van Gog, T.** (2018). Using Example-based PF Conditions to Investigate Preparatory Effects of Problem-solving Prior to Instruction. In: Kay, J. and Luckin, R. (Eds.). *Rethinking Learning in the Digital Age: Making the Learning Sciences Count, 13th International Conference of the Learning Sciences (ICLS), Volume 3* (p. 1681-1682). London, UK: International Society of the Learning Sciences.
- Hartmann, C., Olsen, J., Brand, C., Alevin, V., & Rummel, N.** (2017). Examining Positive and Negative Interdependence in an Elementary School CSCL Setting. *The 12th International Conference on Computer Supported Collaborative Learning* (pp. 633–636), Philadelphia, USA: International Society of the Learning Sciences.
- Hartmann, C., Rummel, N., & Loibl, K.** (2016). Communication patterns and their role for conceptual knowledge Acquisition from Productive Failure. In: C. K. Looi, J. Polman, U. Cress, & P. Reimann (Eds.). *Proceedings of the 12th International Conference of the Learning Sciences (ICLS), Volume 1* (pp. 530-537). Singapore: International Society of the Learning Sciences.
- Hartmann, C., Angersbach, J. C. & Rummel, N.** (2015). Social Interaction, Constructivism and Their Application Within (CS)CL Theories. In: O. Lindwall, P. Häkkinen, T. Koshmann, P. Tchounikine & S. Ludvigsen (Eds.). *Exploring the Material Conditions of Learning: The Computer Supported Collaborative Learning (CSCL) Conference 2014, Volume 2* (p. 553-556). Gothenburg, Sweden: International Society of the Learning Sciences.

Konferenzvorträge & Symposien (peer reviewed; nicht in Tagungsbänden publiziert)

- Hartmann, C., Kosel, C., & Bannert, M.** (2026). *Kohärenzbildung im Blick: Prozessanalysen des situierten Lernens in virtuellen Realitäten*. Beitrag präsentiert auf der 26. Tagung der Gesellschaft für Empirische Bildungsforschung (GEBF), München, Deutschland.
- Hartmann, C., Kosel, C., Bannert, M.** (2025) Exploring Attentional Flow in IVR: Gaze-Based Process Mining to Analyze Coherence Formation. In J. Buchner & A. Martella (Organizers & Chairs), *Moving the Field Forward: Pinpointing Features of Immersive Virtual Reality That Support Learning* (Symposium). Paper presented at the 21st Biennial Conference of the European Association for Research on Learning and Instruction (EARLI 2025), Graz, Austria, August, 2025.
- Hartmann, C.** (2024). *Discussion at Symposium V - Instructional principles for teaching and learning with immersive virtual reality technology* (Organizer: M. Mulders). Symposium Discussion at the EARLI SIG 6 & 7 conference, Tübingen, Germany, August, 2024.
- Brand, C., **Hartmann, C., Loibl, K., & Rummel, N.** (2024). Identifying starting points for designing adaptive guidance in productive and vicarious failure. In *Symposium I - Advancing adaptivity of support in digital learning environments: Focusing on the adaptivity design*. Paper presented at the EARLI SIG 6 & 7 conference, Tübingen, Germany, August, 2024.
- Hartmann, C., Kosel, C. Bannert, M.** (2024). *Immersive VR Learning Environments: Coherence Formation and Effects of Environmental Details*. Poster presented at the EARLI SIG 6 & 7 conference, Tübingen, Germany, August, 2024.
- Hartmann, C., Kosel, C. Bannert, M.** (2024). *Immersive VR-Lernumgebungen: Effekte von Umgebungsdetails und Kohärenzbildung*. Vortrag auf dem 53. DGPs-Kongress / 15. ÖGP-Konferenz 2024, Österreich, Wien, September, 2024.
- Pflieger, L. C. J., **Hartmann, C., & Bannert, M.** (2024). *Fostering Collaborative Learning in Social Virtual Reality*. In Dever, D. & Wiedbusch, M. (Organizers & Chairs), Identifying, Scaffolding, and Predicting SRL Strategy Use within Advanced Learning Technologies. Symposium presented at the 11th International Conference of EARLI SIG16 Metacognition and Self-Regulated Learning for Research on Learning and Instruction, Heidelberg, Germany, September, 2024.
- Bannert, M., Lim, L., **Hartmann, C.** (2024). Selbstreguliertes Lernen mit Digitalen Medien. Bedeutung temporaler und multimodaler Prozessanalysen. Eingeladener Vortrag auf der 9. Landeskonferenz "Psychologie im Lehramt". TUM School of Social Sciences and Technology, Educational Sciences, 25.-26.04.2024
- Hartmann, C., & Bannert, M.** (2023). *Imagine & Immerse Yourself: Does Visual-Spatial-Imagery Moderate Learning in Virtual Reality?*. Paper presented at the 20th International Conference of the European Association for Research on Learning and Instruction (EARLI), Greece, Thessaloniki, August, 2023.
- Hartmann, C., & Nachtigall, V.** (Organizers & Chairs). *A look behind immersive scenes: Experiments on effective learning in virtual reality environments*. Symposium presented at the 20th International Conference of the European Association for Research on Learning and Instruction (EARLI), Greece, Thessaloniki, August, 2023.
- Hartmann, C., & Bannert, M.** (Organizers & Chairs). *Lernen mit VR- und AR-Technologie: Konzeptuelle Grundlagen und empirische Befunde*. Symposium auf dem 52. DGPs-Kongress, Deutschland, Hildesheim, September, 2022.
- Hartmann, C., Bannert, M.** (2022). *Lernen mit immersiver Technologie: Die Bedeutung räumlich-situativer Modellierung für den semantischen Wissenserwerb*. Vortrag auf dem 52. Kongress der Deutschen Gesellschaft für Psychologie (DGPs), Deutschland, Hildesheim, September, 2022.
- Hartmann, C., & Bannert, M.** (Organizers & Chairs). *Lernen mit VR- und AR-Technologie: Konzeptuelle Grundlagen und empirische Befunde*. Symposium auf der 18. Fachgruppentagung Pädagogische Psychologie der Deutschen Gesellschaft für Psychologie (PAEPSY), Deutschland, Heidelberg, September, 2021.
- Hartmann, C., & Bannert, M.** (2021). Theoretische Perspektiven auf das Lernen in Virtueller Realität – Potentiale und Herausforderungen. Vortrag auf der 18. Tagung der Fachgruppe Pädagogische Psychologie (PAEPSY), Deutschland, Heidelberg, September, 2021.

- Tangocci, E., **Hartmann**, C., & Bannert, M. (2021). Effekte von Virtual Reality auf das Lernen von Berufsschülern. Vortrag auf der digitalen Thementagung der Gesellschaft für Empirische Bildungsforschung (digiGEBF), September, 2021.
- Hartmann**, C., Rummel, N., & Van Gog, T. (2019). Preparatory Effects of Problem Solving versus Studying Examples Prior to Instruction. Paper presented at the 18th International Conference of the European Association for Research on Learning and Instruction (EARLI), Germany, Aachen, August, 2019.
- Hartmann**, C., Rummel, N., & Van Gog, T. (2017). Productive or Vicarious Failure: Do students need to make every mistake by themselves? Paper presented at the 17th International Conference of the European Association for Research on Learning and Instruction (EARLI), Finland, Tampere, September, 2017.
- Hartmann**, C., Rummel, N., & Van Gog, T. (2016). Beispielbasiertes Lernen im Rahmen des Productive Failure Ansatzes. Vortrag auf dem 50. Kongress der Deutschen Gesellschaft für Psychologie (DGPs), Deutschland, Leipzig, September, 2016.
- Hartmann**, C., Rummel, N., Murglat, H., & Loibl, K. (2013). Kooperatives Lernen in der Grundschule: Die Wirksamkeit von Ressourcen- und Belohnungsabhängigkeit. Vortrag auf der 14. Fachgruppentagung Pädagogische Psychologie der Deutschen Gesellschaft für Psychologie (PAEPSY), Deutschland, Hildesheim, September, 2013.