

# PUBLICATIONS (\* peer reviewed)

14.03.2022

Sarah Isabelle Hofer

## ACCEPTED

- \*Hillmayr, D., Reinhold, F., Ziernwald, L., **Hofer, S. I.**, & Reiss, K. (in press). Zusammenhang zwischen Leistungs- und Motivationseffekten beim Einsatz digitaler Tools.
- \*Lesperance, K., **Hofer, S. I.**, Holzberger, D., & Retelsdorf, J. (acceptance as registered report). Narrowing the Motivational-Affective Gender Gap through School-Based Interventions? A Meta-Analysis.

## 2022

- \***Hofer, S. I.**, Reinhold, F., & Koch, M. (2022). Students home alone – Profiles of internal and external conditions associated with mathematics learning from home. *Eur J Psychol Educ.* <https://doi.org/10.1007/s10212-021-00590-w>

## 2021

- Edelsbrunner, P., **Hofer, S. I.**, & Schalk, L. (2021). Lernleistung bewerten. In P. Greutmann, H. Saalbach, & E. Stern (Eds.), *Professionelles Handlungswissen für Lehrerinnen und Lehrer*. Stuttgart: Kohlhammer.

- Greutmann, P., **Hofer, S. I.**, & Schalk, L. (2021). Die lang-, mittel- und kurzfristige Planung schulischer Lerngelegenheiten. In P. Greutmann, H. Saalbach, & E. Stern (Eds.), *Professionelles Handlungswissen für Lehrerinnen und Lehrer*. Stuttgart: Kohlhammer.

- \***Hofer, S. I.**, Nistor, N., & Scheibenzuber, C. (2021). Online teaching and learning in higher education: Lessons learned in crisis situations. *Computers in Human Behavior*, 121, 106789.

- Hofer, S. I.** & Schalk, L. (2021). Das individuelle Lernen unterstützen: Formatives Assessment. In P. Greutmann, H. Saalbach, & E. Stern (Eds.), *Professionelles Handlungswissen für Lehrerinnen und Lehrer*. Stuttgart: Kohlhammer.

- \*Scheibenzuber, C., **Hofer, S.**, & Nistor, N. (2021). Designing for fake news literacy training: A problem-based undergraduate online-course. *Computers in Human Behavior*, 121, 106796.

- \*Strohmaier, A. R., Reinhold, F., **Hofer, S.**, Berkowitz, M., Vogel-Heuser, B., & Reiss, K. (2021). Different complex word problems require different combinations of

cognitive skills. *Educational Studies in Mathematics*, 1-26.  
<https://doi.org/10.1007/s10649-021-10079-4>

## 2020

- \*Berkowitz, M., Stern, E., **Hofer, S. I.**, & Deiglmayr, A. (2020). Girls, boys and schools: On gender (in)equalities in education. In F. M. Cheung & D. F. Halpern (Eds.), *Cambridge Handbook of the International Psychology of Women*. Cambridge University Press.
- \*Hillmayr, D., Ziernwald, L., Reinhold, F., **Hofer, S. I.**, & Reiss, K. M. (2020). The potential of digital tools to enhance mathematics and science learning in secondary schools: A context-specific meta-analysis. *Computers & Education*, 153, 103897. <https://doi.org/10.1016/j.compedu.2020.103897>
- \***Hofer, S. I.**, Holzberger, D., & Reiss, K. (2020). Evaluating school inspection effectiveness: A systematic research synthesis on 30 years of international research. *Studies in Educational Evaluation*, 65, 100864. <https://doi.org/10.1016/j.stueduc.2020.100864>
- \***Hofer, S. I.**, Reinhold, F., Loch, F., & Vogel-Heuser, B. (2020). Engineering Students' Thinking About Technical Systems: An Ontological Categories Approach. *Front. Educ.*, 5(66). doi:10.3389/feduc.2020.00066 doi: 10.3389/feduc.2020.00066
- \*Reinhold, F., **Hofer, S. I.**, Berkowitz, M., Strohmaier, A., Scheuerer, S., Loch, F., Vogel-Heuser, B., & Reiss, K. (2020). The role of spatial, verbal, numerical, and general reasoning in complex word problem solving for young female and male adults. *Mathematics Education Research Journal*. <https://doi.org/10.1007/s13394-020-00331-0>
- \*Reinhold, F., **Hofer, S. I.**, Hoch, S., Werner, B., Richter-Gebert, J., & Reiss, K. (2020). Digital support principles for sustained mathematics learning in disadvantaged students. *PLOS ONE*, 15(10): e0240609. <https://doi.org/10.1371/journal.pone.0240609>
- \*Reinhold, F., Obersteiner, A., Hoch, S., **Hofer, S. I.**, & Reiss, K. (2020). The Interplay Between the Natural Number Bias and Fraction Magnitude Processing in Low-Achieving Students. *Front. Educ.*, 5(29). <https://doi.org/10.3389/feduc.2020.00029>
- Reinhold, F., Reiss, K., Diedrich, J., **Hofer, S. I.**, & Heinze, A. (2020). Ergebnisse der PISA-Erhebung 2018 im Bereich Mathematik. *Schulmanagement-Handbuch*, 41(173). 20-26.
- Scheuerer, S., Reinhold, F., **Hofer, S.** & Reiss, K. (2020). Studieneingangsvoraussetzungen von Studierenden des Gymnasiallehramts Mathematik – Erste Ergebnisse eines Projekts zur Verbesserung der universitären Ausbildung. In A. Frank, S. Krauss & K. Binder (Eds.), *Beiträge zum Mathematikunterricht 2019* (pp. 689–692). Münster: WTM-Verlag. <http://doi.org/10.17877/DE290R-20595>
- \*Stadler, M., **Hofer, S.**, & Greiff, S. (2020). First among equals: Log data indicates ability differences despite equal scores. *Computers in Human Behavior*, 111, 106442. <https://doi.org/10.1016/j.chb.2020.106442>

## 2019

Dumont, H., **Hofer, S. I.**, Brod, G., & Moeller. J. (2019). Individualized Learning through Adaptive Teaching – Frontiers in Research and Practice. *White Paper*. Zurich: Jacobs Foundation.

**Hofer, S. I.** & Holzberger, D. (2019). *Berichterstattung Forschungssynthese Schulinspektion*. Zentrum für Internationale Bildungsvergleichsstudien (ZIB), Munich, Germany.

**Hofer, S. I.**, Holzberger, D., Heine, J.-H., Reinhold, F., Schiepe-Tiska, A., Weis, M., & Reiss, K. (2019). Schulische Lerngelegenheiten zur Sprach- und Leseförderung im Kontext der Digitalisierung. In K. Reiss, et al. (Eds.), *PISA 2018* (pp. 111-128). Münster: Waxmann.

\*Loch, F., Vogel-Heuser, B., Reinhold, F., Böck, S., **Hofer, S. I.**, & Reiss, K. (2019). Investigating Mental Models of Mechanical Engineering Students. *Proceedings of the 2019 18th International Conference on Information Technology Based Higher Education and Training (ITHET)*. <https://doi.org/10.1109/ithet46829.2019.8937356>

Reinhold, F., Reiss, K., Diedrich, J., **Hofer, S. I.**, & Heinze, A. (2019). Mathematische Kompetenz in PISA 2018: Aktueller Stand und Entwicklung. In K. Reiss, et al. (Eds.), *PISA 2018* (pp. 187-209). Münster: Waxmann.

\*Vogel-Heuser, B., Loch, F., **Hofer, S. I.**, Neumann, E.-M., Reinhold, F., Scheuerer, S., & Reiss, K. (2019). Analyzing Students' Mental Models of Technical Systems. *Proceedings of the 2019 IEEE 17th International Conference on Industrial Informatics (INDIN)*, 1, 1119–1125. <https://doi.org/10.1109/INDIN41052.2019.8972071>

## 2018/2017

\***Hofer, S. I.**, Schumacher, R., Rubin, H., & Stern, E. (2018). Enhancing physics learning with cognitively activating instruction: A classroom intervention study. *Journal of Educational Psychology*, 110(8), 1175-1191. <http://dx.doi.org/10.1037/edu0000266>

\***Hofer, S. I.**, Schumacher, R., & Rubin, H. (2017). The Test of basic Mechanics Conceptual Understanding (bMCU): Using Rasch analysis to develop and evaluate an efficient multiple-choice test on Newton's mechanics. *International Journal of STEM Education*, 4(18). <https://doi.org/10.1186/s40594-017-0080-5>

\*Lichtenberger, A., Wagner, C., **Hofer, S. I.**, Stern, E., & Vaterlaus, A. (2017). Validation and structural analysis of the kinematics concept test. *Physical Review Physics Education Research*, 13(1), 010115. <https://doi.org/10.1103/PhysRevPhysEducRes.13.010115>

## 2016 AND EARLIER

**Hofer, S. I.** (2016). *The interplay between gender, underachievement, and conceptual instruction in physics*. Doctoral thesis. ETH Zurich, Switzerland (Prof. Dr. Elsbeth Stern, Prof. Dr. Andreas Vaterlaus, Prof. Dr. Oliver Lüdtke).

- Hofer, S. I.** (2016). Gender Bias und Physiknoten. *Gymnasium Helveticum*, 3, 29-30.
- \***Hofer, S. I.** & Stern, E. (2016). Underachievement in physics: When intelligent girls fail. *Learning and Individual Differences*, 51, 119-131. <http://dx.doi.org/10.1016/j.lindif.2016.08.006>
- \***Hofer, S. I.** (2015). Studying gender bias in physics grading: The role of teaching experience and country. *International Journal of Science Education*, 37(17), 2879-2905. <http://doi.org/10.1080/09500693.2015.1114190>
- Stern, E. & **Hofer, S. I.** (2014). Wer gehört aufs Gymnasium? Intelligenzforschung und Schullaufbahnentscheidungen. In E. Wyss (Ed.), *Von der Krippe zum Gymnasium. Bildung und Erziehung im 21. Jahrhundert* (pp. 41-54). Einheim and Basel: Beltz Juventa.
- Hofer, S. I.** (2010). *Auf der Suche nach Unterrichtskulturen - Eine empirische Annäherung*. Diploma thesis. Ludwig Maximilian University of Munich, Germany (Prof. Dr. Frank Fischer, Prof. Dr. Ingo Kollar).

## IN PREPARATION

- Edelsbrunner, P., Lichtenberger, A., Malone, S., **Hofer, S. I.**, Kuhn, J., Schmid, R., Brünken, R., Stern, E., & Vaterlaus, A. (in preparation). The relation of representational competence and conceptual knowledge in female and male undergraduates.
- Hofer, S. I.**, Reinhold, F., Hulaj, D., & Koch, M. (in preparation). What matters for boys doesn't necessarily matter for girls and vice versa: Gender-specific relations between perceived self-determination, engagement, and performance in school Mathematics.
- Hofer, S. I.**, Taut, S., & Holzberger, D. (in preparation). Internal school evaluation: A systematic review.
- Hofer, S. I.**, Ziegler, E., Markwalder, U., & Stern, E. (in preparation). How socio economic status and intelligence guide access to university education: Data from Switzerland indicate an undesirable development.
- Lichtenberger, A., **Hofer, S. I.**, Stern, E., & Vaterlaus, A. (in preparation). Enhanced conceptual understanding in Physics with formative assessment: Results of a randomized intervention study.
- Reinhold, F., Diedrich, J., **Hofer, S. I.**, & Schiepe-Tiska, A. (in preparation). Do interest and self-efficacy mediate gender effects related to math, science, and reading achievement?

## SYMPOSIA

- Hofer, S. I.** & Daumiller, M. (2021). Auswirkungen von COVID-19 auf die Hochschullehre: Online Lehren und Lernen als Herausforderung und Chance. *digGEBF Thementagung Bildung und Corona*. (remote)

## CONFERENCE CONTRIBUTIONS

- Reinhold, F., Diedrich, J., **Hofer, S. I.**, & Schiepe-Tiska, A. (2022, March). Mediieren Interesse und Selbstwirksamkeit Geschlechtereffekte bezogen auf Mathematik-, Naturwissenschafts- und Leseleistung? 9. GEBF Tagung, Bamberg, Germany (online).
- Reinhold, F., Strohmaier, A., **Hofer, S.**, Berkowitz, M., Vogel-Heuser, B. & Reiss, K. (2021, October). Domain-general cognitive abilities in complex mathematical word problem solving [Poster]. *2021 meeting of the network "Developing and stimulating competencies: Methodological challenges and opportunities for research"*, Leuven, Belgium.
- Hillmayr, D., Reinhold, F., Ziernwald, L., **Hofer, S. I.**, & Reiss, K. (2020, December). Zusammenhang zwischen Leistungs- und Motivationseffekten beim Einsatz digitaler Tools. *ZfE-Forum: Bildung für eine digitale Zukunft*.
- Hoch, S., Reinhold, F., **Hofer, S. I.** & Reiss, K. M. (2020, Apr 17 - 21) *Effects of Gender and Ability on Students' Use of Adaptive E-Learning Systems in School Contexts* [Roundtable Session]. AERA Annual Meeting San Francisco, CA <http://tinyurl.com/trczrod> (Conference Canceled)
- Ziernwald, L., Schiepe-Tiska, A., **Hofer, S. I.** & Reiss, K. M. (2020, Apr 17 - 21) *Identifying High-Achieving Students: A Comparison of Two Approaches* [Roundtable Session]. AERA Annual Meeting San Francisco, CA <http://tinyurl.com/sett657> (Conference Canceled)
- Ziernwald, L., Schiepe-Tiska, A., **Hofer, S. I.**, & Reiss, K. (2019, October). Gleich und doch verschieden? Subgruppen leistungsstarker Schülerinnen und Schüler und ihre motivational-affektiven Eigenschaften – Ein Vergleich. *Bildungspolitisches Forum des Leibniz-Forschungsverbundes 2019*, Berlin, Germany.
- Hofer, S. I.** (2019, August). Evaluating school inspection effectiveness: A systematic research synthesis. *18th Biennial EARLI Conference*. Aachen, Germany.
- Scheuerer, S., Reinhold, F., **Hofer, S. I.**, & Reiss, K. (2019, March). Studieneingangsvoraussetzungen von Studierenden des Gymnasiallehramts Mathematik – Erste Ergebnisse eines Projekts zur Verbesserung der universitären Ausbildung. *Jahrestagung der GDM*, Regensburg, Germany.
- Ziernwald, L., Schiepe-Tiska, A., **Hofer, S. I.**, & Reiss, K. (2019, February). Gleich und doch verschieden? Profile leistungsstarker Schülerinnen und Schüler und die Ausprägung ihrer motivational-affektiven Eigenschaften. *GEBF Nachwuchstagung*, Cologne, Germany.
- Hofer, S. I.** & Ziernwald, L. (2018, September). Forschungssynthese zur Förderung leistungsstarker SchülerInnen. *6. Münsterschen Bildungskongress*, Münster, Germany.
- Reinhold, F., **Hofer, S. I.**, Hoch, S., Werner, B., Richter-Gebert, J., & Reiss, K. (2018, April). Schulartspezifische Unterschiede des Einsatzes von iPads im Mathematikunterricht der sechsten Jahrgangsstufe. Ergebnisse einer empirischen Studie und weiterführende Fragestellungen. *Wissenschaftlichen Jahrestagung "Digitalisierung und Bildung: Potenziale und Herausforderungen aus der Perspektive der Bildungsforschung" des LERN-Verbundes*, Leibniz-Institut für Wissensmedien Tübingen, Germany.

- Stern, E., **Hofer, S. I.**, & Ziegler, E. (2017). Educational tracking in early adolescence: To what extent does intelligence prevail? Paper presented at the *17th Biennial Conference of the European Association for Research on Learning and Instruction (EARLI)*, Tampere, Finland.
- Hofer, S. I.** (2016). Gender bias effects in physics grading across three countries. Paper presented at the *Gender and STEM Conference*, Newcastle University Business School, Newcastle upon Tyne, UK.
- Schumacher, R., **Hofer, S. I.**, Rubin, H., & Stern, E. (2016). How teachers can boost conceptual understanding in physics classes. *International Conference of the Learning Sciences (ICLS)*, Singapore.
- Schalk, L. & **Hofer, S. I.** (2016). A pragmatic taxonomy for the alignment of teaching goals, instructional methods, and assessments. *EARLI SIG 11 Conference*, Zurich, Switzerland.
- Stern, E., Schumacher, R., & **Hofer, S. I.** (2015). How teachers can boost conceptual and procedural knowledge in physics classes. *16th Biennial Conference of the European Association for Research on Learning and Instruction (EARLI)*, Limassol, Cyprus.
- Hofer, S. I.** (2014). The assessment of underachievement in secondary school physics: Insights into achievement patterns and gender differences. *EARLI SIG 1 Conference Professional Development in Assessment*, Madrid, Spain.
- Hofer, S. I.** (2014). The role of gender in secondary school physics underachievement. *Gender and STEM Conference*, Technical University of Berlin, Germany.
- Hofer, S. I.** (2013). Underachievers in secondary school physics. *15th Biennial Conference of the European Association for Research on Learning and Instruction (EARLI)*, Munich, Germany.
- Hofer, S. I.**, Nussbaumer, D., & Schneider, M. (2011). Practice without feedback can increase the adaptivity of strategy choices: A microgenetic study. *14th Biennial Conference of the European Association for Research on Learning and Instruction (EARLI)*, Exeter, UK.
- Hofer, S. I.** & Kollar, I. (2011). Unterscheiden sich Lehrer und Schüler in ihren Unterrichts-Vorstellungen? Eine empirische Analyse internaler Unterrichtsskripts. *AEPF Tagung*, Bamberg, Germany.

## INVITED TALKS AND WORKSHOPS

- Hofer, S. I.** (2022, February). Individual Differences in Learning With Digital Scaffolds in Secondary School Mathematics. Future Learning Initiative Research Colloquium, ETH Zurich, Switzerland.
- Hofer, S. I.** (2022, February). Individuelles Lernen – Voraussetzungen und Unterstützungsmethoden. DiCTaT-Forschungskolloquium, Potsdam University, Germany.
- Hofer, S. I.** & Heine, J. H. (2021, November). Introduction to research methods: Construction of tests and questionnaires. Workshop at the PH Zurich and the ETH Zurich, Switzerland.

- Hofer, S. I.** (2020, September). Digital technology as a catalyst for individual learning. *Scientific Talks on Learning and Technology*. ETH Zurich, Department of Humanities, Social and Political Sciences.
- Hofer, S. I.** (2019, December). Forschungssynthesen an der TU München - Fokus Wirksamkeit von Schulinspektionen. 29. *EMSE-Tagung «Zentrale Prüfungen und Schulqualität – Wie gelingt die Verbindung?» Landesinstitut für Schulqualität und Lehrerbildung (LISA)*, Halle (Saale), Germany.
- Hofer, S. I.** & Reinhold, F. (2019, September). Individualisiertes Lernen durch individualisierte digitale Lernunterstützung im Unterricht. Invited Symposium on the *2019 Joint Conference of the Sections Developmental Psychology and Educational Psychology (paEpsy)*. Leipzig, Germany.
- Hofer, S. I.** (2019, September). Wirkungen und Wirkbedingungen von Schulinspektion: Eine Forschungssynthese. *Kodex-Tagung*, Kassel, Germany.
- Hofer, S. I.** & Heine, J. H. (2018, January). Introduction to research methods: Construction of tests and questionnaires. Workshop at the PH Zurich and the ETH Zurich, Switzerland.
- Hofer, S. I.** & Heine, J. H. (2017, December). Introduction to research methods: Analysis of tests and questionnaires. Workshop at the PH Zurich and the ETH Zurich, Switzerland.
- Ziernwald, L. & **Hofer, S. I.** (2017, October). Förderung besonders Begabter und Leistungsstarker: Eine Forschungssynthese. *Auftaktveranstaltung Förderung von leistungsstarken und potenziell besonders leistungsfähigen Schülerinnen und Schülern (Bund-Länderinitiative)*, Dillingen, Germany.
- Hofer, S. I.** (2017, April). Bericht zur ETH-Studie „Notendiskriminierung der Mädchen in Physik“. *Weiterbildung des Schweizerischen Verbands der Akademikerinnen „Frauen und MINT“*, Basel, Switzerland.
- Hofer, S. I.** (2016, April). Faire Benotung? Gender-Bias in der Physik und andere Herausforderungen. *SchiLf-Tagung 2016 BMS Winterthur*, Bad Horn, Switzerland.
- Hofer, S. I.** (2016, March). Wie Schülergeschlecht und Lehrerfahrung die Leistungsbewertung in der Physik beeinflussen können. *Konferenz der FachdidaktikerInnen und MentorInnen*, ETH Zurich, Switzerland.
- Hofer, S. I.** (2015, November). Leistungsbewertung in der Physik: Herausforderungen und Möglichkeiten. *HSGYM Herbsttagung*, Zurich, Switzerland.
- Hofer, S. I.** (2014, December). Sex bias in physics. *MINT-Colloquium*, ETH Zurich, Switzerland.
- Hofer, S. I.** (2011, December). The profit potential of different learning opportunities as a function of individual cognition and conation in secondary school physics: Towards a process model of student-teaching interactions. *Quantitative Sociology Colloquium*, ETH Zurich, Switzerland.

## **IN THE MEDIA (SELECTION)**

ETH-Magazin Globe: *Qualitativ hochwertige Forschung möglich machen.*

<https://ethz.ch/de/news-und-veranstaltungen/eth-news/news/2021/09/qualitativ-hochwertige-forschung-moeglich-machen.html>

BOLD – Blog on Learning and Development: *Using digital tools to teach STEM could improve learning outcomes.* <https://bold.expert/using-digital-tools-to-teach-stem-could-improve-learning-outcomes/>

Jacobs Foundation Newsletter: *Digital scaffolding for successful learning*

<https://jacobsfoundation.org/en/digital-scaffolding-for-successful-learning/>

BOLD – Blog on Learning and Development: *Digital tools to transform the classroom.* <https://bold.expert/using-digital-tools-to-transform-the-classroom/>

American Physical Society (APS) News: *Physics Grading Biased Against Women*

<https://www.aps.org/publications/apsnews/201604/grading.cfm>

Deutschlandfunk: *Schülerinnen werden benachteiligt*

[https://www.deutschlandfunk.de/physikunterricht-schuelerinnen-werden-benachteiligt.680.de.html?dram:article\\_id=342369](https://www.deutschlandfunk.de/physikunterricht-schuelerinnen-werden-benachteiligt.680.de.html?dram:article_id=342369)

Der Tagesspiegel: *Junge Physik-Lehrkräfte benachteiligen Mädchen*

<https://www.tagesspiegel.de/wissen/schlechtere-physik-noten-fuer-maedchen-junge-physik-lehrkraefte-benachteiligen-maedchen/12822126.html>

Der Standard: *Studie: Lehrpersonal beurteilt Mädchen in Physik schlechter*

<https://www.derstandard.at/story/2000028845067/studie-lehrpersonal-beurteilt-maedchen-in-physik-schlechter>

*Successful school instruction is digital - but not exclusively*

<https://www.newswise.com/articles/successful-school-instruction-is-digital-but-not-exclusively>

<https://sciencenewsnet.in/successful-school-instruction-is-digital-but-not-exclusively/>

<https://scienmag.com/successful-school-instruction-is-digital-but-not-exclusively/>

[https://www.eurekalert.org/pub\\_releases/2020-08/tuom-ssi080920.php](https://www.eurekalert.org/pub_releases/2020-08/tuom-ssi080920.php)

<https://phys.org/news/2020-08-successful-school-digitalbut-exclusively.html>