Curriculum Vitae Dr. Sebastian Opitz

1 Personal Data

	Dr. rer. nat. Sebastian (Tobias) Opitz
Address:	Adalberstrasse 23 24106 Kiel Germany
E-mail:	opitz@ipn.uni-kiel.de
Telephone:	+49 (0)431 880 5117
Date (place) of birth:	August 14th, 1985 (Giessen/Germany)
Languages:	German (native) English (fluent in speech and writing) French (basic everyday conversion) Latin (basic)

2 Training, Experience & Skills

Research Management & Cooperation

- Planning and conducting large-scale quantitative assessment studies
- Cooperation with software developers to design learning tools
- Cooperative research projects with scientists from a broad range of disciplinary backgrounds
- Strong collaboration with teachers in curriculum development/enactments – coordination between teachers and researchers
- Experience with various methods of data sampling, e.g., Open-ended & closed assessment items, ThinkAloud protocol interviews, cognitive pretesting interviews for item development, interviews about instances, structured exploratory interviews, classroom observations, artifact collection
- Supervision/tutoring for master and bachelor thesis projects
- Participation in multiple workshops on career planning, presenting, and scholarly publishing

Methodological training

- Experience with a broad range of quantitative and qualitative research methods
- Graduate school courses on classical and probabilistic statistics, as well as on qualitative research
- Frequent application of statistics software, e.g., SPSS, M*plus*, Conquest, MS Excel, R
- *Employed quantitative analyses*: Scale-building statistics, exploratory and confirmatory factor analyses (EFA/CFA), ANOVA, ANCOVA, Repeated Measures ANOVA, regression models, Rasch modeling, DIF-tests, structural equation modeling (SEM)
- *Employed qualitative analyses*: Inter-rater reliabilities, categorization and evaluation of qualitative audio and video data using MAXQDA and STUDIOCODE software, qualitative content analysis (Mayring, 2010)

Research communication

National and international conferences: Posters, oral presentations and symposia participation/organization, e.g., ERIDOB 2012, NARST 2013, ERIDOB 2014, ESERA Summer School 2014, NARST 2015, NARST 2017

Publication experience: see below

3 Professional Activity

07/2017–	Research Scientist at IPN – Leibniz Institute for Science and Mathematics Education at Kiel University, Department of Biology Education *Legal Seat of the International Biology Olympiad*
05/2016– 06/2017	Research associate CREATE for STEM Institute, Michigan State University, USA (Work group of Prof. Joseph Krajcik)
10/2014– 01/2015	Visiting scholar Weizmann Institute of Science, Israel (Work group of Prof. David Fortus)
10/2011– 04/2016	PhD program, see below

4 Education

10/2011– 04/2016	PhD program in science education, IPN - Leibniz Institute for Science and Mathematics Education at Kiel University, Germany Work group of Prof. Dr. Ute Harms (biology education) (Degree received: July 2016, “magna cum laude”)
09/2008– 07/2009	Study abroad program, Studies in Biology and English University of Aberdeen, UK Erasmus scholarship by the European Union
10/2006– 07/2011	Degree for middle and high school teaching in Biology and English University of Kiel, Germany (Degree: 1st State Diploma, equivalent to Master’s degree, July 2011)
10/2005– 09/2006	Law studies at Kiel University and Jena University, Germany
08/1996– 04/2005	Middle and High School Jürgen-Fuhlendorf Gymnasium, Bad Bramstedt, Germany and German School of Tokyo/Yokohama, Japan (“Abitur”, high school diploma, received 04/2005, Point average: 1.9)

5 International experiences

2016/2017	Post-doc position, USA (14 months)
2014/2015	Research visit, Israel (3 months)

2008/2009	Study-abroad program, Scotland (10 months)
2005	Internship, New Zealand (1 month)
2004/2005	High school and internships, Japan (13 months)
2001	Student exchange, Canada (4 months)

6 Publications

Peer-review – published & in press

Opitz, S., Harms, U., Neumann, K., Bernholt, S. (2017). How Do Students Understand Energy in Biology, Chemistry, and Physics? Development and Validation of an Assessment Instrument. *EURASIA Journal of Mathematics, Science and Technology Education, 13*(7), 3019–3042. https://doi.org/10.12973/eurasia.2017.00703a

Opitz, S., Harms, U., Neumann, K, Bernholt, S. (2017, in press). Students' progressing energy understanding across contexts from biology, chemistry, and physics. *Research in Science Education*

Opitz, S., Blankenstein, A., Harms, U. (2016, online first). Student Conceptions about Energy in Biological Contexts. *Journal of Biological Education*. http://dx.doi.org/10.1080/00219266.2016.1257504

Opitz, S., Harms, U., Neumann, K., Kowalzik, K., Frank, A. (2015). Students' Energy Concepts at the Transition between Primary and Secondary School. *Research in Science Education*, *49*(5), 691-715. doi 10.1007/s11165-014-9444-8

Appelhans, Y., Thomsen, J., **Opitz, S.,** Pansch, C., Melzner, F., & Wahl, M. (2014). Juvenile sea stars exposed to acidification decrease feeding and growth with no acclimation potential. *Marine Ecology Progress Series*, 509, 227–239. doi: 10.3354/meps10884

Editorial review, published

Opitz, S., & Opitz, M.-T. (2016). Winterschlaf: Energiesparen als Überlebensstrategie [Hibernation: Energy Saving as a Survival Strategy]. *Unterricht Biologie*, *40*(411), 18-23.

Kelpe, M., Damaschun, A., Gutsche, S., Harms, U., **Opitz, S.**, Pareigis, J., Schmidt, S., Sommer, C., Wakilzadeh, G., and Weigt, I. (2016). Kompetenzorientierung im Sachunterricht [Competence-oriented science education]. In: *Entwicklung kompetenzorientierten Unterrichts in Zusammenarbeit von Forschung und Schulpraxis*. Waxmann: Muenster, Germany, pp.185-204.

Monographs

Opitz, S. (2016). *Students' Progressing Understanding of the Energy Concept: An analysis of Learning in Biological and Cross-Disciplinary Contexts*. Doctoral thesis, Leibniz Institute for Science and Mathematics Education, Kiel University, Germany. 358 pages

Available online at: http://macau.uni-kiel.de/receive/dissertation_diss_00019005;jsessionid=9F309527200977059C43051620591841?lang=en

Opitz, S. (2011). *Vergleichende Untersuchungen über den Einfluss von erhöhtem Seewasser pCO_2 auf den gemeinen Seestern Asterias rubens L. in der Ostsee* [Comparative Analysis on the Influence of Increased Sea Water pCO_2 on the Common Starfish, *Asterias rubes L*. in the Baltic Sea], Staatsexamensarbeit [Master thesis equivalent], Helmholz Center for Ocean Research Kiel/Germany, 112 pages.

Available online at: http://oceanrep.geomar.de/12620/