

# RISTAL

Research in Subject-matter  
Teaching and Learning

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### Research in Subject-matter Teaching and Learning

#### Launch issue

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## Editorial

*Martin Rothgangel*

We are very happy to present the launch issue of Research in Subject-matter Teaching and Learning (RISTAL) after an intense time of preparation. A great number of international journals have been published in the various fields of subject-matter education (“Fachdidaktik”) in recent years, so one might ask the question: Why add yet another journal to the already rich array of scientific publications? In our view there is a simple reason: while the existing subject-matter education journals focus each on their own discipline, RISTAL aims to bring these into a fruitful dialogue by nurturing cross-disciplinary exchange. If you would like to learn more about our vision, please visit the page “mission statement”, where you will find more of our thoughts on cross-disciplinary exchange.

The idea to create a new journal came up in the context of the Association for “Fachdidaktik” (subject-matter education) where colleagues from 25 different subject-matter education disciplines in Germany are already engaged in a fruitful exchange amongst each other.

RISTAL takes the practice of cross-disciplinary exchange even further by reaching out beyond the German speaking world, by publishing exceptional articles and engaging readers in an international discourse about research in subject-matter teaching and learning.

Susanne Prediger opens the discussion in the first article of the launch issue. Her deliberations apply to math didactics, but can be extended far beyond this field to encompass other domains of study. She demonstrates the importance of domain specific and even topic specific research by alluding to the research journey of the MuM (Mathematiklernen unter Bedingungen der Mehrsprachigkeit [Mathematics Learning in Multilingual Contexts]) research group. On page 17 she writes: “In order to bring innovations into school, much more than a new syllabus demanding the fostering of language learners in every subject is required. The often underestimated research challenge is to specify what exactly has to be learned before asking how it can be learned.”

This article is followed by a contribution entitled “Confronting subject matter education with memorial pedagogy” from the German language educationalist Anja Ballis. Her research about guides in memorial sites and Holocaust museums is based on Grounded Theory methodology and poses the question how non-formal education “can be reflected upon from the point of view of formal subject-matter education of history and language”.

The following three contributions are from the field of chemistry education. Each one is relevant in its own way from a cross-disciplinary perspective, as they empirically

examine the meaning either of research-based learning or inquiry-based learning or explore to what extent scientific inquiry is taught in science textbooks.

In this sense, the article by Friederike Rohrbach-Lochner & Annette Marohn presents a design-based research project “in the context of pupils’ (mis)conceptions in science” developed, in which they pursue the question, “how research-based learning can increase teacher students’ knowledge and abilities”.

In their paper “Inquiry-based learning and secondary chemistry education – a contradiction?”, Elisabeth Hofer, Simone Abels & Anja Lembens examine the way in which teacher beliefs about inquiry-based learning (IBL) can pose an obstacle to its implementing. The complexities involved in implementation even such convincing concepts as IBL in the context of the everyday practice of teaching become exemplarily clear.

Next, Christian Georg Strippel, Lutz Tomala & Katrin Sommer analyze a total of 13 textbooks of natural science education in their article “A cross-subject content analysis of science textbooks using the understandings about scientific inquiry rubrics.” The rubric “USIR”, developed specifically for this purpose, may prove fruitful to subject-matter education beyond the field of natural science.

Bettina Bussmann & Mario Kötter’s article entitled “Between scientism and relativism: epistemic competence as an important aim in science and philosophy education” represents an ideal case for RISTAL as biology and philosophy education, two different domains of subject-matter education, are here engaged in constructive dialogue. This article also marks the transition from the previous three contributions from the natural sciences to the final article from the field of religious education entitled “The structure of teacher knowledge” by Ulrich Riegel & Eva Maria Leven.

The concepts of content knowledge (CK) and pedagogical content knowledge (PCK), both of which have been developed in mathematics education, are viewed from a comparative perspective to highlight concepts specific to the field of religious education. It becomes clear that CK in the domain of religious education needs to be amended by epistemological competence and PCK by incorporating the teacher’s perspective on the topic. In a similar way, this last point has also emerged in biology education in the context of the topic of climate change. This article demonstrates by means of example how a comparative perspective as specified as one of the aims of RISTAL can inspire research in subject-matter education.

At this point our gratitude goes to the authors for their contributions and the reviewers who have been engaged intensely in the articles. Unfortunately, only a third of all the articles submitted could be accepted into the launch issue due to our high standard of quality and cross-disciplinary objective.

Following this issue and until November all further contributions will be published immediately after successful completion of the review process.

All articles can be quoted immediately due to DOI. All subscribers will receive an email whenever a new article has been published. At the end of the year we will compile a paginated volume consisting of all the articles published during the year.

A heartfelt thankyou goes out to the staff of the Institute of Religious Education who have made this publication possible through their hard work and dedication: Karin Sima and Marietta Behnoush for their technical and editorial work, Katharina Schmutterer and Maximillian Saudino for proofreading the contributions and last but not least Dr. Sabine Hermisson for all her support in her function as journal manager.

Finally, we would like to thank the University of Vienna and the Association for “Fachdidaktik” (subject-matter education) for their financial support without which launching this journal would not have been possible.