

## Editorial: good teaching is a myth!?

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# Editorial: Good teaching is a myth!?

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## Editorial on the Research Topic

### Good teaching is a myth!?

The search for the principles of successful teaching has always been one of the central questions of pedagogical thought and action. Already in antiquity, Plato—and the later Cicero and Quintilian—found the first indications of how learning and teaching interact successfully. The *Didactica Magna*, published at the beginning of the 16th century and one of the most important works by Johann Amos Comenius, is still considered an innovation in the development of successful teaching. However, especially in the modern era, which early on saw the creation of university structures and a differentiation of subjects, the search for the principles of successful teaching has become more systematic and differentiated. Particularly far-reaching in recent years have been the numerous empirical research findings.

Despite the continuous progress of research on teaching and learning, the practice of classroom teaching is often supported by widely held myths that claim the validity of assertions without any empirical substance. This can be demonstrated by the example of learning styles—e.g., auditory, visual, and communicative—that are referred to repeatedly to explain why students learn differently (Hattie, 2008). Since a couple of years ago, neurobiological research is being referred to in order to improve classroom teaching. However, due to a lack of empirical evidence, it is not possible to establish valid suggestions for the improvement of teaching and learning, and thus, neuromyths facilitate misconceptions about teaching (Dekker et al., 2012).

For a long time, the prevalence of educational myths has been attributed to ritualized routines and myths about learning based on common experiences of schooling. According to Nuthall (2005), ritualized routines might be effective to manage classroom teaching, but their application also explains why individual student learning remains largely invisible to teachers. What teachers need to know in order to teach effectively has been one of the central challenges of educational research since its advent more than 70 years ago. Specifically, since the seminal article of Brophy and Good (1986), empirical research has focused on observable characteristics of teacher behavior in order to predict the progress of student learning. A major goal of empirical research has been the identification of effective so-called “teaching functions”. The extensive but often ambiguous state of research on teaching has resulted in a manageable amount of hands-on suggestions, which often are fairly trivial (Rauin, 2004). A milestone in the search for useful suggestions for improving teaching is Hattie’s book “Visible Learning” (Hattie, 2008), which “Reveals Teaching’s Holy Grail”. Although this work was euphorically received, to this day it leads to controversial discussions. Often cited, but mostly not read and thus badly adopted, “Visible Learning” also risks becoming an educational myth. Thus, the hard problem still consists in finding ways to overcome the ritualized routines and myths of teaching and learning.

Accordingly, the provocative statement “*Good teaching is a myth?!?*” focuses on one of the central tasks of empirical educational research, namely, to determine the principles of successful teaching and to identify how myths influence what we perceive, believe, and do about improving teaching and learning in the classroom. Clearly, the issue of “good teaching” can be illuminated from different perspectives. This includes both disciplinary and interdisciplinary approaches and both national and international studies. Against this background, contributions are compiled here that answer the question of what successful teaching is from different perspectives and with different approaches. The result is a wide array of approaches that make it clear that successful teaching is not a myth. On the contrary, there is a multitude of scientifically validated aspects that prove when teaching is effective.

In the paper “*Five principles for high-quality mathematics teaching: Combining normative, epistemological, empirical, and pragmatic perspectives for specifying the content of professional development*”, Prediger et al. begin by describing different perspectives, including a normative, epistemological, empirical, and pragmatic one. Building on this, they show how these interact with each other before formulating principles for effective teaching. As a result, five principles are presented: “Conceptual Focus, Cognitive Demand, Student Orientation and Adaptivity, Longitudinal Coherence, and Enhanced Communication”.

In the paper “*Promoting the construction of intelligent knowledge with the help of various methods of cognitively activating instruction*”, Schumacher and Stern provide an overview of the current state of research on cognitive activation in the classroom. Based on this, they derive six methods that have been shown to be effective in experimental studies, especially for promoting conceptual understanding on the part of students.

In the paper “*Conceptualizing and measuring instructional quality in mathematics education: A systematic literature review*”, Mu et al. clarify the relationship between the conceptual and operational indicators mentioned in the literature and analyze them empirically. To do so, they first conduct a systematic literature review based on the PRISMA approach and then describe the range of indicators found in more detail.

In the paper “*Measuring adaptive teaching in classroom discourse: Effects on student learning in elementary science education*”, Hardy et al. present a reliable measurement approach for adaptive teaching at the primary level. This includes an overarching index and specific indices for diagnostics, learner support, and student understanding. The core message is that teacher education matters, because teachers rarely perform adaptive teaching.

In the paper “*Good teaching—The adaptive balance between compulsion and freedom*”, Kiel and Weiss engage with the question “What is good teaching?”, which is as old as humankind itself. They

discuss the questions of which arguments speak for teaching in the face of the tension between freedom and coercion, how these can be combined, and what follows from this for good teaching. By clarifying these questions, they arrive at a clear message: Good teaching strikes an effective balance between constraint and freedom.

As editors, we were pleased with the response to the call for papers. Above all, however, we were pleased that the various contributions address the wide scope of the topic: Good teaching has many facets. It ranges from subjective to objective and from systemic to cultural facets. The task of research in educational science is to keep this breadth in mind and thus to do justice to the complexity of teaching. In the past, much research has been conducted in the area of good teaching (Seel and Zierer, 2012). However, not infrequently, just one of the aforementioned perspectives dominated and led to one-sided conclusions. As a result, there even existed parallel worlds in this field: On the one hand, empirical research methods that brought evidence into the discussion with force, and on the other hand, theoretical, historical, and normative approaches that primarily use hermeneutic procedures to arrive at insights in the discourse. From our point of view, both perspectives are important, because they represent the two sides of one and the same coin. In the presented articles, this complexity becomes visible, and thus, they make an important contribution so that educational science research in the future can provide comprehensive and better answers than ever before to the question of good teaching.

## Author contributions

NS and KZ wrote the manuscript. All authors contributed to the article and approved the submitted version.

## Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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