# Editorial

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ETH ranks among the world's leading universities. How can the institution's splendid research reputation be carried over to its teaching and learning? What can we do to help student learning benefit from, and be inspired by, ETH's fertile intellectual soil?

This issue of the ETH *Learning and Teaching Journal* reveals existing responses to this question at ETH by focusing on the topic of student learning. Our contributors move learning into the spotlight and illuminate the seemingly 'coincidental' relationship between teaching and learning (see Eugster & Tremp's 2018 reference to Comenius). Viewing learning as the intended goal of teaching allows our authors to use their academic expertise to design situations and environments which support students' development of defined skills and competences. Practically speaking, teachers decode disciplinary expertise in the form of outcome statements. For learners these descriptors illustrate what it takes to accomplish the next step towards mastery of the discipline. What are students expected to do to complete a particular course? Do they need to memorise facts, make sense of information provided, implement or analyse procedures, (re)organise constituent parts to accomplish a defined purpose, make judgments about products or results, or create something new? (see Anderson & Krathwohl 2001) In a setting where the required cognitive processes are clearly articulated, the roles of learners and teachers shift: students and teachers alike become informed contributors to the learning process. A learning-centred approach also has the potential to include teachers and students in a joint self-reflection process which touches upon learning, teaching and research (see Eugster & Tremp 2018).

In times where facts become outdated at an increasing speed, it is urgently important for society to question the quality of information, make sense of complexity and develop solutions to unknown problems. Viewing learning, research and teaching as mutually enriching components of academia may provide one apt response to these developments. If higher education offers students a series of active experimentation opportunities where they may try, question, fail, and try again, this may prepare them appropriately for the world of the future and comprise one response to the question for ETH raised above.

The authors' contributions in this issue illustrate how they promote student learning in two ways. Some share insights into student learning in their ETH classrooms, while others discuss learning and teaching in and across disciplines. Several authors describe how their teaching approach shifts from a transmission-focused to an interactive learning-focused approach (Schwarm; Schwab), and some show unconventional ways of promoting active learning in the classroom (Steiner et al). Others are interested in how specific teaching interventions affect student motivation (Grahofer & Suter), or promote feedback and student self-assessment (Lüthi & Wieser). Ting learns about her students' decision-making in architectural design processes, while van Vliet & Brändle develop a modelling competence inventory which allows them to foster student progress with targeted feedback. Mayer & Sieroka describe how they have made remote learning across disciplinary boundaries possible with new software, while Milligan reflects on his experience using different teaching approaches to help students develop academic writing skills. Gille provides a compact practice guide for developing courses

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at ETH. Edinger contributes an account of developing physical learning environments at ETH, and Kortemeyer illuminates the potential of teaching practitioner research for exploring student learning in higher education.

We would like to thank all authors for their contributions to the conversation on teaching and learning in this issue of the ETH *Learning and Teaching Journal*. We cordially invite all ETH teachers to share their classroom practice or thoughts in the area of teaching and learning in future issues.

## *References*

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