

# Teaching Change Agents for Active Learning in Engineering Education

**Dr. Monika Rummler & Petra Nikol**

TU Berlin, Germany

Email: [Monika.Rummler@tu-berlin.de](mailto:Monika.Rummler@tu-berlin.de) & [Petra.Nikol@tu-berlin.de](mailto:Petra.Nikol@tu-berlin.de)

## ABSTRACT

Teacher training, dissemination competence, active learning, engineering education, first-year students

## INTRODUCTION

The paper will describe the pedagogical training of “Teaching Change Agents”. They represent a special and new category of teaching staff at TU Berlin recruited for the implementation and dissemination of active learning approaches, mainly for first year students. They are qualified by a tailor-made mandatory training, designed with regard to their specific roles and the necessary competences. Based on the course offers for the still voluntary pedagogical qualification of academic teaching staff in general, an exemplary curriculum for the qualification of these change agents has been developed. Experiences with this qualification concept and with efficient training methods will be outlined. Preliminary results of the impact of the approach will be presented which are based on answers to self-evaluation questionnaires for the involved students.

## BACKGROUND & EXPLANATION

TU Berlin is one of the largest technical universities in Germany with about 30 000 students. High numbers of first-year students, 1000 or more in introductory STEM-lectures, make teaching and learning often challenging. In addition to about 300 full-time professors teaching 9 hours per week, the teaching staff comprises nearly 2500 research and teaching assistants, normally contracted for 5 years. Besides working on their doctoral theses, they are obliged to teach at least 4 hours per week. In many cases, they have neither previous didactic nor pedagogic qualifications, but can achieve respective competences on a voluntary basis by our TU Berlin teaching staff training. Within a special programme for the improvement of study conditions and teaching and learning at universities, funded by the German Federal Ministry of Education and Research, we developed the approach of “teaching change agents”. They have to design and implement new active learning based courses and in this context also contribute to the pedagogical training of their colleagues.

## SET UP

In order to monitor the impact of our approach we designed a questionnaire for the students, mainly focused on concrete learning activities. Preliminary results indicate that more than one third of participating students perceive their learning outcome to be above-average compared to standard lectures at TU Berlin. In addition, activating teaching methods also seem to increase the perceived quality of the students’ own learning process compared to other lectures.

## EXPECTED OUTCOMES

The long-term goal is to implement an innovative and interactive teaching and learning culture, corresponding with a student-centered didactic approach, the impact of lifelong learning and professional support structures at university and in faculties. Therefore, we aim at qualifying all teaching staff during all phases of their teaching career. The training for teaching in higher education and professional counselling for teaching change agents is based on the existing certified programme for teaching and learning (accredited by the German Association for Academic Development). It is complemented by tailor-made offers, supporting individual needs. With these competences they act as disseminators within the faculties and departments and provide counselling and workshops about good teaching practice in their fields to colleagues. They also develop innovative teaching concepts and projects for their own subject-specific teaching. Thus, they make staff and organizational development work hand in hand. The implementation of the necessary change requires organizational and curricular developments (support structures) in addition to teaching staff development.

**Session type:** poster