

Teaching Lab: Training Novice Computer Science Teachers

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ABSTRACT

Student teaching assistants are not uncommon in computer science. However, their pedagogical training is often only superficial. This poster presents the Teaching Lab – a mature and fully developed training course for novice teachers (mostly undergraduate teaching assistants), its core principles, content and unique features as it evolved over five years. Our experience can be helpful to others intending to create or adjust a training program for novice teachers.

CCS CONCEPTS

• **Social and professional topics** → **Computing education programs**; • **Applied computing** → *Collaborative learning*.

KEYWORDS

teacher training, teaching assistants, reflection

ACM Reference Format:

Martin Ukrop, Valdemar Švábenský, and Imrich Nagy. 2020. Teaching Lab: Training Novice Computer Science Teachers. In *Proceedings of the 2020 ACM Conference on Innovation and Technology in Computer Science Education (ITiCSE '20)*, June 15–19, 2020, Trondheim, Norway. ACM, New York, NY, USA, 1 page. <https://doi.org/10.1145/3341525.3393967>

1 EXTENDED ABSTRACT

It is not uncommon for universities in Europe and the USA to engage undergraduate teaching assistants (TAs) in computer science (CS) courses [3]. The Faculty of Informatics at Masaryk University introduced the TA program in the early 2000s. With about 1700 students and 450 people participating in teaching, the body of more than 150 student TAs (undergraduates, graduates and postgraduates) constitutes an essential part of the teaching process. The management of student TAs was, however, left entirely on the individual courses.

In spring 2016, TAs initiated the creation of the Teaching Lab (teachinglab.fi.muni.cz), an experimental training course for the (primarily undergraduate) TAs at the faculty. Over time, the course has matured – running for the seventh time in spring 2020 as an optional weekly course for three credits. It has over 160 alumni, including postgraduate students, senior TAs, eight faculty staff members and six CS educators from other contexts such as industry or school teachers. The initiative stands on three core principles:

- (1) *Encouraging reflective practice*. Our students use semi-structured reflective diaries [5] and are regularly engaged in pair reflection during the weekly Teaching Lab sessions. We ask students to

visit each other's classes and share feedback. All these activities are supported by building a shared terminology of CS pedagogy.

- (2) *Providing teaching inspiration*. Multiple Teaching Lab sessions demonstrate a new concept or use micro-teachings to engage students in a shared discussion on a topic. We summarize the skills and terminology in session handouts and share teaching activities in the *Stack* [4].
- (3) *Building a teacher community*. Primarily, Teaching Lab provides the shared time and place to discuss teaching among student TAs. However, it also incorporates faculty staff and CS teachers from other contexts. Apart from the course, we proactively engage in other activities related to teaching (e.g., focused discussions on improving the local teaching environment).

The core topics include precedents and norms, patterns used for individual or group interaction, questions and their variations, task variations, formative feedback and student motivation. Although not CS-specific, they are presented in the CS context.

When comparing Teaching Lab to training sessions in other undergraduate TA programs [1, 2], several points stand out:

- The course mixes community approach (experience sharing), coaching (guided reflection) and expert teaching (didactics).
- The course is CS-focused, but not bound to any particular class. The content focuses more on pedagogical knowledge and general CS didactics than technical content.
- The course has a diverse audience and thus functions as a bridge among student TAs, faculty staff and other CS educators.
- The course is taught by an evolving team of mentors, including a professional communication trainer and multiple senior TAs (master and postgraduate students).

We are grateful for the continuous faculty support and the efforts of Ondráš Příbyla and other people shaping the course with us.

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ITiCSE '20, June 15–19, 2020, Trondheim, Norway

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