Preparing First-Time CS Student Teaching Assistants

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ABSTRACT

Student Teaching Assistants (TAs) are an important help, especially in large undergraduate courses. They act as role models and as agents between students and teachers. They also help guide the students' learning process by supervising groups and grading homework. We prepare new TAs by training their diagnostic and didactic skills.

CCS CONCEPTS

• **Social and professional topics → Computer science education**;

KEYWORDS

student TAs, training, teaching

1 PREPARING CS STUDENT TAS

Student TAs are often only a few semesters ahead of the students they supervise and support. They usually lead a weekly exercise group, consisting of about 15-35 students. They are expected to assist students in understanding and applying the topics of the associated lecture by working on sample problems. They also grade the weekly homework submissions. Although the handing in of homework is not strictly monitored, most lectures in our first year of study require a minimum number of homework points to be achieved in order to be eligible for taking part in the final exam.

We expect our TAs to support the students by allowing them to achieve the exercise goals with as little direct advice as possible. As many students as possible should be able to reach their own solution using TA assistance and feedback, but without simply receiving the solution or a step-wise explanation. TAs should employ different intensities of support depending on the current student's state of progress and understanding, ranging from encouragement ("you can do this") up to solution-oriented hints ("try Merge Sort here"). Questioning techniques ("what did you do so far?") are recommended to identify the source of their students' problems, to ensure the TA's efforts address the actual needs of the given student.

To achieve these goals, our TAs receive a training comparable to the one described in [1] before their first group meeting, which depending on the concrete lecture takes between four and 16 hours, the latter split over two full days. Typically, there are also weekly meetings between the TAs and the lecturers or their assistants, where the upcoming exercise sheet and current issues are discussed.

During this training, TAs are prepared for their job by...

- reflecting individually and as a group on their tasks, and what characterizes a "great" or "weak" student TA,
- reflecting on and developing appropriate assisting strategies,
- preparing for a smooth start into the first exercise group: what information needs to be provided? How to best announce my name, contact data, and office hours?
- simulating challenging teaching situations. For example, one person acts as the TA responding to a student complaining about the grading of the homework, while other students struggle with the current exercise,
- understanding the fundamentals of group communication, teamwork, and avoiding ambiguities,
- becoming familiar with grading homework and providing sensible and respectful feedback,
- dealing sensibly with potential cases of academic dishonesty,
- using the department's Moodle platform as a student TA.

The training combines different types of activities, ranging from a brief presentation, think-pair-share activities and role-playing to individual work. We also perform work shadowing and reflect the observed tutorial together with the student TA in a feedback meeting. About 400 student TAs have participated in this training since summer 2014. Both student TA trainings and tutorials are evaluated. The grades for the trainings are usually between 1 and 2, with 1 being the best grade on a 1-5 scale.

REFERENCES

[1] Francisco J. Estrada and Anya Tafliovich. 2017. Bridging the Gap Between Desired and Actual Qualifications of Teaching Assistants: An Experience Report. In *Proceedings of the 2017 ACM Conference on Innovation and Technology in Computer Science Education (ITiCSE '17)*. ACM, New York, NY, USA, 134–139. https://doi.org/10.1145/3059009.3059023