Integrating School Practice in Austrian Teacher Education

Lukas Planteu[1], Bernhard Standl[2,3], Wilfried Grossmann[3] and Erich Neuwirth[3]

[1] Bundesrealgymnasium Vienna 7, Austria
`pla@brg7.at`
[2] Bundesrealgymnasium Vienna 10, Austria
[3] University of Vienna, Faculty of Computer Science, Austria
`{wilfried.grossmann,erich.neuwirth,`
`bernhard.standl}@univie.ac.at`

Abstract. We present a concept of better integration of practical teaching in student teacher education in Computer Science. As an introduction to the workshop different possible scenarios are discussed on the basis of examples. Afterwards workshop participants will have the opportunity to discuss the application of the concepts in other settings.

Keywords: Computer science teaching, teaching practice

1 Introduction

At the moment teaching experience at schools is rather limited in the curriculum of teacher education in Austria for all subjects. In order to overcome this problem we started a co-operation between the faculty of Computer Science at the University of Vienna and two Viennese schools and organized joint courses for teacher students in computer science. Besides the goal of offering student teachers more opportunities for practical teaching in university education such courses also allow testing different teaching concepts. In particular we are interested in promoting learner-centred teaching, project-based teaching and alternative ways of classroom management in teaching computer science.[1]

2 Design

The general design of the courses developed in cooperation between university and school teachers can be described by the following six phases:

1. Initial Phase: At the beginning of the course we organize a joint meeting of students and the cooperating teacher and university lecturer. This meeting offers students the opportunity to learn about knowledge of the pupils from the teacher's perspective. Furthermore the topics to be covered according to the curriculum are discussed.

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2. Introductory phase: In this phase the students visit the school and are introduced to the class.
3. Preparatory phase: Students prepare concepts for their teaching. Besides the content dimension the students are also invited to reflect about the different competence dimensions and methods for assessment and also to show how Computer Science and ICT can be applied in an interdisciplinary setting or in everyday life.
4. Discussion phase: The teaching concepts are introduced at the university. In general we do not change the students' concepts too much, because we want to give student teachers the opportunity to make their own teaching experience.
5. Teaching phase: Students apply their concepts in teaching pupils at school.
6. Reflection and evaluation phase: After the course we arrange separate discussion rounds with the pupils as well as with the students and ask them to fill in a questionnaire.

As a communication platform we use mainly Moodle, because it is at the moment the de facto standard platform at Austrian schools.

3 Workshop Topics

In the workshop we will demonstrate by examples how the concept worked in detail. In particular we discuss the following three scenarios:

 (i) Using graphic software for interdisciplinary applications of Computer Science in grade 10 classes;
 (ii) Teaching basic ICT and CS skills in grade 4 and grade 5 classes according to the Austrian educational standards;
(iii) Teaching Computer Science in a project week with a grade 11 class. This project week was planned as a preparation for school leaving examination (Matura) in Computer Science next year.

Besides the presentation of the teaching concepts in the different settings we will also discuss results of the evaluation of student teachers and pupils. In general we can say that the courses were well accepted by both groups. For students teachers the main profit was additional teaching experience and the informal contact with the teacher. With respect to teaching skills the most important experiences were learning adaptive behaviour according to different settings, time management in the classes, and understanding pupils' conceptions of different topics in Computer Science. From the learners' perspective the response was also positive because the new setting increased their attention. Especially concerning the project week everybody agreed that continuous project-oriented work is much more effective than the traditional splitting of lessons over several weeks.

The material presented will be used as input for discussion with participants about pros and cons of the approach and about opportunities to transfer the ideas into other CS teacher curricula.