Tell me about Pedagogy in programming!

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Introduction

In upper secondary school, teachers are challenged by a multitude of different students’ prerequisites. In less than 200 hours students are supposed to refine and develop procedural skills and understanding in programming. Because of the small amount of hours you could expect an educational setting mostly suitable for the inhabitants of programming; a sort of mainstream tendency in the education.

The teacher-challenge could best be described as a design for educational inclusion that breaks the traditional boundaries offered by culture inherent in programming and artifacts (hardware and software); the technology and the programming language at hand could deliver significant constraints. Educational improvements are also constrained by teachers’ former experiences and beliefs inherent in the subject (matter) together with school culture.

The Figure down below describes three questions posed during a seminar with 25 teachers in upper secondary school:

- Q1) To what extent do you expect students’ prerequisites
- Q2) To what extent do you work with students’ development of skills
- Q3) To what extent do you consider the following knowledge as important to receive the highest mark.

These questions were answered according to a five-graded Likert scale in a questionnaire, when going from less important to very important, concerning eight abilities.

Methods

I intend to use video-recorded material, published on Internet, to enhance teachers’ pedagogical reflections. With three to five excerpts teachers could compare, with their own practice, different educational settings from other schools.

The ongoing research concern the teacher’s perception of education in programming, with a focus on their pedagogy as a tool for students learning. The research so far has revealed the three following concepts as important for the inquiry:

- Critical perspective
  implications of division of students into groups (tracking)
- Pedagogical content Knowledge (PCK) perspective teachers’ pedagogical, school and content knowledge + their epistemological belief
- Socio-culture perspective
  educational constraints in different school context.

Questions of concern

- How do I construct research settings, where I am not dependent on teachers’ ability to reflect on their practice? (To achieve reliability in data)
- In what way would the inquiry be biased if teachers with ability to reflect would be in majority? (To achieve reliability in data)
- What kind of interaction should the video-recording illustrate? (Three to five different examples to enhance reflection about conceptual understanding)
- Where do I find similar research, in CER, where teachers and researcher are working together, on equal grounds, to make a win-win situation for everybody involved? (Concerning the methodology)


References

ICER 2010 Aarhus, Denmark, August 8 - 11. 2010