The focus of this study is pre-service teacher education for primary and lower secondary school knowledge and knowledge on an integrated 4-year programme. Training for upper secondary is organised differently. The ideal is a mixture of subject matter pedagogy and school practice from day one, in reality this often proves hard to achieve. At present pre-service teachers for school practice is a well-functioning integrated part of the teacher education programme, but after school practice systematic approaches to use student teachers’ experiences are needed in the science subject courses.

Research Question:
How does it affect pre-service science student teachers’ professional reflections if after school practice, students are encouraged to systematize, video-experiment and documented systematization representation when considering their school experience?

Theoretical Framework
Many research projects have looked at ways of documenting and developing teachers’ professional knowledge. One theoretical framework is Pedagogical Content Knowledge, PCK (Shulman, 1987) but articulating links between professional teacher knowledge and practice in a way that can be represented to others has proven difficult. Using an interaction of CoRe (Content Representation, linked to a particular content) and P-ERs (Professional and Pedagogical Experience Retrieval - teachers’ narratives) was seen as a break-through (Loughran et al., 2004). The method was first used to portray experienced teachers’ PCK, but subsequently was recommended to be used in science teacher preparation programs and research in this area in now coming (Loughran et al., 2008).

Methods and sample
The project described here involved student teachers on a geography course in their fourth, and last year of teacher education. Two different approaches were used:
- P-ER: Reflective narrative representations and videotaped fragments from students’ school practice in autumn 2007.
- CoRe: Reflective narrative fragments, developed by the students in groups while using their case studies and video excerpts as a starting point.

Furthermore, interviews and essays from the student teachers’ evaluation reveal their commitment and actively showed that they were a little surprised about the enlightenment that came about through working with this kind of practice learning. The reflective narratives as video excerpts were regarded as being very helpful learning tools by the student teachers. Video supplement narratives and show something different, more like a close-up.

The student teachers’ commented upon how developing a CoRe serves to give an overview and share knowledge. A CoRe represents a common paradigmatic knowledge, but examples from the project indicate that the CoRe’s are based on the student teachers’ experiences. Furthermore, come to represent what can be called a situated theoretical/ knowledge base.

CoRe is used as a systematic view on classroom dialogue transcribed from video suggest that what the student teachers think they are doing and what they are actually doing do not always match up. One example is that video from one of the student teachers’ classes show the children not being able to differentiate the green house effect from ozone layer dilution and natural climate changes from manmade one. These typical school students alternative frameworks has previously been analysed. Results including these typical school students alternative frameworks has previously been analysed. Results including these typical school students alternative frameworks has previously been analysed. Results including the students responding to open ended questions were considered as following the literature.

Aims can be placed under two headings. Teachers professional knowledge:
- Synthesis of theory and practice in science teacher education: Qualification and innovation in the teacher education didactic.

Conclusions and implications
Use of the three approaches: Student’s reflective narratives, video-sequences as close-ups and Co-Re as a systematic view on teaching a given content to a group of school students seems to point at a promising direction to follow when developing teacher education. The student teachers develop their individual reflection on action as well as reflection within the community of learners and through this the method the student teachers analysed and documented content didactics in a synthesized way, which can be seen as a first step in developing PCK. Further examination of the methodology in other science subject courses and in student teachers bachelor projects are running at the moment including further examination of the particular use of video-based “ artefacts of practice”.

A short Bibliography

The three approaches in synthesis. CoRe is constructed representing a common knowledge base. The individual student teachers’ course (reflective narratives) is presented. The respective student teachers’ classrooms (illustration inspired by Loughran et al., 2004).

The one CoRe from the project: Teaching Climate Change in lower secondary school 8th grade. Ten different CoRe’s were constructed by the student teachers.