

### *Abstract*

- Title: To do the best with what you know. A longitudinal study of how seven student teachers develop their teaching and teacher role in science.
- Language: Swedish, with summary in English.
- Keywords: Science teacher education, longitudinal case study, teacher thinking, early professional development, pre-service teaching, practical work, intentionslogic of events.
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This study aims to deepen the understanding of how student teachers experience science education during their teacher training and later during their professional teaching. Seven student teachers participate in this study. Their intentions and epistemic attitudes in planning and carrying out their teaching in science for pupils aged 11-16 are studied, with a particular focus on the pupils' practical work.

Data were collected by interviews and by observations of science lessons during pre-service teaching. Later, when the teacher students worked as professional teachers, they were interviewed and observed at one occasion. Data were collected throughout a period of six and a half years. To analyse the data, an instrument based on Georg Henrik von Wright's 'logic of events' was used. The determinants of action (here: science teaching) are both internal and external and can be described in terms of 'want', 'ability', 'duty' and 'opportunities'. The analyses of curriculum planning are made from an 'inner' and an 'outer perspective', where the 'outer perspective' refers to prior experiences from the student teachers' own schooling and the teacher training programme.

The results show that the teacher education programme had little effect on the student teachers' goals of teaching in the new direction of science education. The informants expressed the wish that their teaching would be fun and interesting for the pupils, and this goal was reached mainly on a personal plane.

During periods of practice the supervisor's norms was the most influential determinant for planning and performing science lessons and pupils' practical work. When the informants worked as professional science teachers, the teaching climate and colleagues at the school itself, and the school's local science curriculum were the most important determinants for curriculum planning. The teaching performances closely resembled known patterns from own schooling and pre-service teaching. The pupils' laboratory work had in most cases little resemblance with the demands from the 1994 National curriculum (Lpo 94) or the new ways of looking at science education and pupils' practical work.

The results show that the teacher education programme was not successful in giving the informants the ability to interpret the 'new' goals for science education and to transfer these goals to concrete teaching/learning situations. The opportunities offered by the periods of practice to increase the student teachers' ability to use and become more familiar with different teaching methods were not sufficiently utilised. On the other hand, the periods of pre-service teaching fulfilled the informants' personal desire to strengthen their leadership and teacher role.

In the concluding chapter some implications of this study for teacher education are discussed.