

Thesis in teacher education - research orientation, professional relevance and student involvement

Abstract

Many teacher education programs concentrate on bringing theoretical perspectives to bear on events of teacher practice. There is a concern for fostering critical analysis. Writing of theses can be one way of promoting critical analysis.

One aim of this development project is to integrate research orientation and professional relevance as concerns university studies in teacher education, thesis and future work. The idea is to make students gain deeper insight into academic culture and research as well as into school culture. This concerns differences as well as similarities within these practices. Another aim is to develop models for group-supervision.

The students will have two supervisors. One traditional supervisor will support the student as concerns scientific issues. One supervisor (a process supervisor) will support the research process and guide the students into appropriating ways of thinking, reading, writing, discussing and documenting their work.

Our experience is that the critical academic tradition in teacher education is rather weak and that the students in general are not well prepared for this kind of work. In this project we intend to promote students' critical thinking by making them reflect on the research process and discuss together ideas, drafts, and more developed texts among themselves. These activities are central and self-evident in research. Students need to be involved in such activities to understand their functions in research as well as in professional work. We consider that this kind of activity will have favourable impact on teacher practice and reflection on school activities in teacher teams in schools. Also, students' thesis work needs to be related to ongoing research at the university and/or development projects in school.

This development project is at an initial stage where students' and supervisors' ideas about scientific work and professional relevance of the thesis will be investigated. Students in teacher education will be involved in all stages of the project, as for instance planning, definition of quality criteria of the thesis, evaluation of models for supervision.

Keywords: Higher Education, Classroom Research, Instructional Innovation, academic education, professional development, active learning, supervisors

**Thesis in teacher education – research
orientation and professional relevance**

**Elisabeth Ahlstrand & Kerstin Bergqvist
Department of Behavioural Sciences,
Linköping University**

Abstract

One aim of this project was to integrate research orientation and professional relevance in teacher education, in relation to educational theory, thesis writing and future work. Another aim was to develop models for group-supervision to let students participate in discussions about their work, which was expected to promote student influence and development of analytic thinking. Data were collected by means of a questionnaire before the students started working on their thesis. Supervisors' notes from group supervision were collected after their series of meetings.

The students claim that the thesis gives them new knowledge and skills which are important in their profession. It has also improved the overall quality of their education. The thesis work, as well as group supervision, when students' needs are considered, facilitates student influence.

Key words: academic education, professional development, active learning, supervisors.

The focus of this article is the final academic thesis in teacher education. The project aims at integrating research orientation and professional relevance and supporting an analytic approach in students' thinking. Another aim is to develop models for group supervision.

Rationale for change

Teacher education in Sweden has long been carried out at teachers' training colleges with their close connections with schools. Accordingly, it has traditionally not been research- and theory-based, but rather based on well-tried practices. Earlier, and partly as a result of Anglo-Saxon influence in the domain of education, critical inquiry and reflection have been less prominent elements than teaching and learning methods, norms and values.

Teacher students are not used to posing research questions. Nor has it been self-evident in teacher education to carry out and supervise extensive written work and to see writing as an instrument for critical examination and competence development.

In Swedish teacher education, a thesis was introduced as a compulsory element in 1993 (SFS 1993:100). This was done to facilitate an integration of teacher education into university traditions of teaching and learning, which is supposed to be research- and theory-based. Besides, the thesis should be relevant to teachers' practice.

An official committee report "Att lära och leda [To learn and to lead] (SOU 1999:63) emphasizes more strongly than ever a research-oriented teacher education. In line with this idea, a reformed education for teachers was launched in 2001. Several commissions had pointed at the fact that teacher students must be involved in more theoretical work in their training. The students should be trained in argumentation, analytic thinking and writing. To achieve these skills, the students should be active in self-tuition, be able to participate in seminars and experience new forms of examination.

A strong argument for a reformed teacher education is that the character of teachers' work changes, and that it will continuously do so. According to the government bill (Prop 1999/2000:135), teachers must engage in lifelong learning to be able to catch up with changing professional tasks. One essential component of this new agenda is again the thesis, which is motivated as a major means to more analytic ways of thinking among teacher students and teachers. It is argued, that working with a thesis will make the student familiar with research methods and lead to deeper knowledge in a certain field. The thesis is also supposed to prepare students for post-graduate studies. However, most of the students will become schoolteachers and the thesis then can prepare them for development work in schools.

Review of relevant literature

It has been assumed that working with the thesis makes students familiar with scientific tools, such as methods for gathering data, systematic analytic thinking, interpretation and evaluation. However, courses in research methods alone do not make the education research-oriented. This is rather a question of attitude to knowledge (Björklund, 1989). The study context ought to be characterized by discussions about research questions and knowledge

development. Independent thinking and curiosity are first of all stimulated by inviting students to participate in the scientific discourse, which can create an attitude to a field of knowledge, Björklund claims (p. 45). He points to the great value of self-governed work, such as a thesis, which he says involves the whole research process and not least the difficult task of framing a relevant problem. In a similar sense, Ahlström (1992), claims that the prime motive for knowledge development is *wonder* about phenomena and that knowledge of research methods is of help in seeing a phenomenon from different perspectives. However, this as well as argumentation and analysis, needs to characterize the total study environment.

In the Swedish context, Lendahls Rosendahl's study (1998), was mainly concerned with whether teacher students saw themselves as prepared for a theory-based approach or not and what consequences a thesis would have for teacher education as a whole. Many of the students in her study realized that the thesis presupposes systematic and analytic thinking, as well as focused and critical reading and writing, and saw it as a tool for developing professional skills. With the thesis, the students were exposed to new challenges as concerns independent work and scientific approach. It could contribute to a more research-oriented teacher education (Bergqvist, 2000).

A thesis as a vehicle for making teacher education more research based has been discussed in several European countries. However, a final thesis is not compulsory in every teacher education in Europe (Ahlstrand, 2002). Much of the discussion has concerned whether a theoretical research work is adequate in teacher education or not. Meeus et al (2004) argue that a thesis on Bachelor level tends to copy the demands of a theory-oriented Master's thesis, which often is in the form of a literature study. A Master's thesis is supposed to be a contribution to theory building while a Bachelor's thesis is first and foremost meant as a learning instrument. Its importance has more to do with personal development and reflective thinking and for this purpose a portfolio is recommended. The authors describe students' learning in the categories: information skills, meta-cognitive skills and attitudes. When it comes to attitudes, independent learning has a central position and this must be stimulated from the beginning of the education.

The thesis as a research work or a more practically oriented work is also considered by Handal (1995) who points at two aims with a thesis: to improve the discipline and to develop the student's knowledge. The former aim leads to formal demands in line with those derived from a research tradition. These, however, are difficult to satisfy within a task such as the thesis, as long as there is not enough time for such work. Another difficult point is that the students in general have little or no knowledge of research methods. The second aim focuses more on the process of writing a thesis and the opportunities students have to develop critical thinking concerning everyday practices in school. Handal claims that the thesis within teacher education should be treated as a "learning task" and not as a "research task" (p. 11).

In a study made in Cambridge, England, Galvin (1995) reported on experiences that teacher students made from an undergraduate dissertation. It turned out that the thesis met the intellectual needs of the students and gave personal

satisfaction such as pride in one's work and enhanced professional self-confidence. The undergraduate dissertation was described as an exercise in critical scholarship, however framed by personal interest. The formal and academic aspects of the work were highlighted. The students should demonstrate an ability to choose relevant sources and to use them with discrimination, to structure their work and to express themselves with clarity and accuracy.

The ability to work independently is supposed to be one important outcome of undergraduate study and the thesis is the principal element to promote this. In a study by Todd et al. (2004) the students valued autonomy, self-direction and ownership of their work. In the study it was obvious that the students were not familiar with independent and self-directed studies. They had obvious difficulties when it came to producing a researchable question. There are simply not enough opportunities to prepare for this elsewhere in their education.

In Finland, the thesis is more academic and extensive than in many other European countries. In an analysis of stories that students live by in connection with a thesis Yliyoki (2001) shows that the meaning of thesis writing is experienced in essentially different ways. Students have different approaches to learning, such as academic orientation, professional orientation and instrumental orientation (p. 22). In Finland the thesis is an inherent part of university studies. It gives qualifications as well as status and, if successful, transforms students as consumers into students as producers of knowledge (p. 21) Further, Niemi (1990) argues that the thesis might acquire too much of a research character, especially if it is strongly or solely influenced by models borrowed from research. The student should rather be encouraged to use acquired skills, such as critical thinking, when they analyse school practices.

These few examples show that what seems to be at issue in teacher education in many countries is basically the relation between theoretical, research-based work and teaching practice. The studies also point to the potential of a thesis in teacher education when it comes to developing personal professional skills and critical thinking, and to introducing tools for reflecting upon and understanding classroom practice. To become autonomous, students need sufficient support in their education. Independent study develops over time. A curious and inquiring attitude and independent, critical thinking and working, require that teacher education as a whole must make up a context in which such a study orientation becomes self evident.

In line with this, teacher education must offer opportunities to participate in scientific discourse. Seminars and group supervision are sessions where independent thinking and ability to pose and frame research questions can be supported. Lauvås & Handal (1993), Forslund (1995) and Hård af Segerstad & Silén (1999) give thorough advice as concerns development of professional competence and supervision of learning processes. Andersson & Persson (2002) describe a project with the aim to offer students supervision of their individual projects as well as a network for social support in groups. This model proved to be successful in the sense that more students finished their theses in due time. Further, Wright & Lodwick (1989) pointed out that not only supervisors, but also other students could be supportive in a thesis work.

Initially, we thought that students as well as supervisors would benefit by the project. Occasions to meet and talk about research and research methods and opportunities to pose and define research questions would promote research orientation in teacher education. To be prepared for these group supervision sessions, the supervisors would gain from knowing more about the students' initial thinking. Therefore, we began by finding out: what and how do the students think about their thesis work before they start working with it? In what sense are they prepared for the work? How motivated are they? What do they mean that they can learn from it? What do they think that a thesis means in teachers' work? We have not found that these issues have been dealt with in the literature.

Questions

According to local curricula and other policy documents, teacher education in Sweden has changed a lot during the last decade. Has this made it easier for students to work with and finish their theses? Are students and supervisors willing to engage in the development work? It takes time and students as well as supervisors may feel uncertainty concerning scientific work and professional relevance. Furthermore, the teachers may feel uncertain about group supervision. Our aim was to get insight into students' thinking concerning issues such as research orientation and professional relevance as well as their attitudes to the thesis before they began working with it. This was important information for the supervisors when preparing for group supervision.

We anticipated that the students, despite several tasks and activities promoting research orientation in their earlier studies, were not really prepared for such an extensive autonomous work. This also showed to be the fact. The students did not realize that they had to start early with their work. This can also be referred to the culture of teacher education. By tradition, a research work has not been seen to be important in teachers' work. It can even be looked upon as a hindrance in teacher students' development. Either you go for a thesis and research studies, or you are trained to become a capable and skilful teacher. Our point is that the experience that a thesis offers promotes the teacher's life-long learning and work.

Importance of the project and why

Our theoretical assumption was that people learn, that is, they appropriate ways of thinking and talking in interaction with other knowledgeable people. Also, a thesis to a great extent is a solitary work and you need opportunities to discuss it with others. Teachers' work has by tradition been solitary, something which has not favoured the profession. The idea behind our project was to offer opportunities to joint reflection. This, we mean, favours the research process and the thesis as product as well as development of critical thinking and reflective practitioners. During the project we developed models for productive group supervision. In this work, colleagues (as supervisors) have participated. This is a working model that we introduced and that will continue after the project.

The project has meant that students and supervisors have become involved in discussions about scientific work and professional relevance. Thus, they

participate in a context for learning, a discourse that has traditionally not been an integrated part in teacher education. We have worked together as a teacher team and developed in our role as supervisors. The students have had opportunities to influence their studies.

Method

Innovation

Initially, we tested a model in which two supervisors were engaged with each group of students, a traditional supervisor and a “process supervisor”. The traditional supervisor was supposed to help the student with the scientific work individually, while the process supervisor met the students in groups. During the group sessions the students should be reminded of study content and activities in their earlier education, which are supposed to contribute to the research-orientation. By participating in discussions about each other’s work, student involvement and student influence were encouraged. We saw this as a possibility for students to become participants in scientific discourse. However, this model turned out to be problematic. Many students found that the two supervisors gave conflicting advice. It was also a rather expensive organization with some duplication of work. So, instead we organized group supervision with one supervisor for 2-5 students. These students had chosen topics that were within the same field or close connected to each other’s. Closeness in the topic choice was so to say, the base for the student groups. The groups of students were organized to promote development of critical thinking and create opportunities for student influence and possibilities to talk about their work in progress.

We also organized 5 seminars with group-supervisors, 10 supervisors in 2003, 10 supervisors in 2004. Here, different models for group-supervision developed by the supervisors were discussed. The supervisors also supplied us with notes from their group- sessions. Various ways of organizing group-supervision were studied with the aim to develop different models.

Students and supervisors

A great deal of the students in their last year in the teacher education have been involved in the project. In year 2003 116 students and in year 2004 161 students have been examined in the course “thesis work”. The project has been integrated in the ordinary program for these students. A majority of the students have had supervision in groups. In teacher education most of the students are women and this is also the case here. They are in general between twenty and thirty years old. Many are going to teach younger pupils. However some of them are studying to be upper secondary school teachers. Those have studied the subjects they are going to teach earlier in their education.

We have found it difficult to involve students for a long time in the project group. Students who take on commissions of trust are already involved in many things and find it difficult to manage more tasks. Therefore, our attempts to engage students during two years in the project did not succeed. As a compensation for this we have been in touch with three students from different

levels in teacher education. This group has been a “reference-group” for the project. The group came to be very important when aspects of supervision were discussed and ideas were tested. This group also participated in the half-time evaluation together with the Council. In this way some of the students have been more involved than others in the project.

Between 50 and 60 supervisors are involved every year in supervising thesis in our teacher education. In general the supervisors combine group-supervision with individual supervision. The supervisors come from 7 departments of the university with different disciplines and they are also involved in other programmes and courses not connected to teacher education. About 60% of the supervisors are women and about 40% are men. They are aged from thirty to sixty years, but there are more supervisors that are fifty plus than fifty minus.

Procedures

In the project we have used different methods for gathering data about students and supervisors thinking about the thesis and the supervision.

1) Questionnaires with open questions were distributed to three different groups of students. This was done before they started to work with their thesis.

The aim of this data gathering was to get insights into students' *initial thinking* about research orientation and professional relevance and their *ideas* about what you can learn from writing a thesis.

Altogether 266 students filled in the questionnaires.

2003 (autumn)	57 students
2004 (spring)	87 students
2004 (autumn)	122 students

The students who answered the questionnaires were in their last year of the teacher education programme and they are about 80% women.

Questionnaires with the same questions were distributed to supervisors on one occasion.

2003 (autumn)	14 supervisors
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Of these supervisors 8 are women and 6 are men.

2) During seminars with group supervisors, notes were taken. The supervisors also provided us with their notes from the sessions with students. In some cases the supervisors also recorded a meeting with students.

3) Ordinary course evaluation was made after each thesis course.

Results

Results from the questionnaire given to students and supervisors are presented here as well as arguments from seminars with supervisors about group-supervision.

What does "scientifically based" mean?

When the students describe what "scientifically based" means in connection with the thesis, they first of all mention literature and/or research. The literature shall be relevant, scientific, theoretical, etc. The students mention literature in connection with different metaphors, which indicate different degrees of involvement with literature.

literature as something "out there"

Students write that they are supposed to find literature, that you have a literature section in your thesis. Literature is mentioned as something that is "out there", that you can seek and find.

literature as something "to relate to"

Students stress that they should attach or connect to literature, lean, base, build on, depart from, anchor in, have as support, return to, etc. Literature is mentioned as something of use when presenting your subject.

literature as "something within yourself"

There are few students who mention literature as something that is handled. The individual takes in, improves him- or her-self in, understands, feels secure in, and uses literature. It is something that you become familiar with, that becomes a part of yourself.

Most of the students seem to use literature to present their subject. Rather few of them take off from a genuine research question that you have to penetrate and engage in by using others' research.

Except for literature, the students mention that the study process is something that characterizes "scientifically based". Research methods should be used, the study should be made in a specific way, formal aspects are important, etc. These demands are related to attitudes, procedure and product. A study should be made in a scientifically correct way, and the product should be correct as concerns structure and formal aspects of language and style.

Answers from *the supervisors* concerning "scientifically based" are more concerned with the process within the student. Supervisors emphasize that students should show that they are able to formulate research questions and use relevant research methods. They also stress that a scientifically based thesis produces new knowledge.

The thesis shall be professionally relevant

In the students' answers different aspects of teachers' work are focused. It is something interesting that can be of help and that you can use in your work as an individual.

It is interesting and useful for a teacher. You write about a topic that you anchor in yourself, in other people and in the literature

Further, writing a thesis means that you write about an issue that is relevant for a teacher's work, as the students understand it. The research questions ought to

be generated in school practice as they have experienced it in school during their education programme. The field of knowledge should connect to the subjects that the teacher student has studied and is going to teach. The understanding of “professional relevance” can be seen as something that has relevance just now in a close perspective.

It should be of help to me in my daily work. The research-question should deal with learning, something that will help me to get a broad perspective.

A broad perspective may also mean that it is relevant to the school context. It has to do with what is going on in school.

It should deal with essential matters that happen just in front of your nose when you are in school practice.

Another dimension can be described as something that is connected with students’ professional life as teachers in a more developed way. It has to do with being a teacher and living a professional life and to have opportunities to develop in your role as a teacher.

It is important that teachers become aware of research about teaching and learning.

Answers from the supervisors about “professional relevance” have to do with the same aspects as the students’ answers. It is important that the topic of the thesis deals with everyday life in school, school systems or teaching. The supervisors stress the ability to formulate research questions here as well, questions that are anchored in school practice and well defined. Supervisors also have ideas about students taking responsibility for a more extended work by them selves and also to work independently. These are abilities that are relevant to the teaching profession.

What can you learn from making a thesis?

The thesis is perceived by the students as being something different from previous courses in the programme.

To work with a research orientation

Research orientation is an ongoing process that they will participate in when working with the thesis. One student answers:

I think I will get a deeper understanding and begin to look at things in a more critical and investigative way. I will develop my own thinking.

There are students who easily see that when working with a thesis you do things that run parallel to what reflective teachers do.

It is important that a future teacher knows how research is conducted to be able to develop his or her own teaching later on.

To learn to work with a research focus involves critical thinking as well as learning about research methods. Even here, the students show that this is something that they have met earlier in their education. However, they think that they will have opportunities to learn more about it during the thesis work. To know about and to be able to make use of research methods in a strict and systematic way is fundamental in research-based work according to many students.

One important aspect of research is the writing process. The students assume that they will develop their writing skills during the thesis course:

I will learn to write and express myself in a research oriented way and give words to my knowledge.

Their answers indicate that in this context they look upon thesis writing as a special kind of writing. This will enable them to participate in a theoretical and professional discourse. Writing is also seen as an aspect of critical thinking.

To get deeper knowledge

The topic focussed in the thesis is the most important thing to many of the students and they maintain that they will learn a lot about it. They are convinced that they will get a deeper knowledge of the topic, which offers opportunities to understand a phenomenon, to reflect and get insights into a field of knowledge. Students appreciate that they can choose a topic out of their own interest and a wish to specialize in it. This topic can be an issue that has not been dealt with earlier in the programme and that the students feel that they have missed.

To deepen my knowledge in something that I find interesting and to get help and supervision, to develop my future profession and myself.

The knowledge that students develop when writing a thesis can be used in different ways or fields. Some of the students stress that they will learn a specific way of reading. This will help them as consumers of research based knowledge. There are also students who think that working with a thesis will result in knowledge that will be important to them in future studies and perhaps in research. This can be seen as a first step in becoming a producer of knowledge.

With these brief examples, we will point to the fact that the possibility of in-depth studies of a specific question that you can choose out of genuine interest means a lot to the students.

Independence, self-discipline, responsibility and future work

Several students realize that the thesis entails demands on them to work independently. They emphasize that it is a "hard job". Even here the students seem to make a difference between the thesis course and ordinary courses in the

programme. To them, this is a long-term project where they have to plan and structure their time carefully. It means to plan and independently carry out a piece of work, to be able to clearly define a subject area and work it through.

To many students, this means an opportunity to grow as a student and in their role as a future teacher. The kind of engagement that is expected from them when working with the thesis will help them to act more independently and they will learn to take responsibility for their own work.

The possibility to develop one's writing skills is essential. The writing process can also be seen as a kind of analytic thinking. In this context it means to handle a problem from different perspectives, examine texts and act as an opponent to someone else's thesis. The students express that they will learn to be critical to what they read and thus to develop their reflection.

Some of the students think that they will acquire skills and knowledge that will continue to develop in their professional life. Among them is e.g. how to use scientific methods to develop your work as a teacher and tools to use in the future to develop reflection and critical examination of information. This is useful for a future teacher, both for one's own classroom work and for examining school material.

Supervisors about group-supervision

Supervisors were invited to seminars to discuss their experiences of group-supervision. The supervisors brought notes from their sessions with students. Several models of group-supervision were developed. The supervisors are in general positive to group-supervision. They say that students have great opportunities to influence the sessions when they come to them with their own questions. The students must be able to formulate what is important to them in the process. The task of the supervisors should be to listen and stimulate the students to express and frame their questions. Another task is to work for a favourable group climate. It is important that the supervision can be differently organized and that the content differs according to where in the process the students are. For the supervisors group-supervision has certain connections to ordinary teaching. It means that supervisors prepare the sessions very thoroughly based on students' interests according to, for example, modes of research methodology, literature and thesis writing. One supervisor expresses it like this.

I think the students have more speed in the group than I have experienced earlier. Perhaps it is because the thesis writing is a course now, during a limited amount of time. Perhaps it has to do with my own "preparation of the course". Compared to individual supervision I invest much time in planning the organization of the meetings. I plan in a new way what is going to be dealt with and how it will be treated so all members in the group will feel involved. It is really an interesting and absorbing process!

Here the supervisor demonstrates that she has made a special timetable, set deadlines and organized students in reading pairs.

What is surprising to the supervisors is that the students in a group use each other as resources to such a small extent during the sessions. Nor do they help each other in the writing process or as emotional support. When they do so, as one supervisor mentions, it can, in fact, be counter-productive to the work. Students' reading is too permissive and friendly. If the students would rely on this critique the theses would come out with a very poor quality.

To sum up, supervisors find it difficult to create group-supervision that really promotes critical thinking among students. Perhaps you can say, "group-supervision is a form of individual supervision in a group". One reason for this can be that students are under great time pressure and very focused on finishing their own products, and they realise that writing a thesis takes more time than they had expected. Still, the supervisors find it demanding to develop forms of supervision that may challenge the students' willingness to read each other's texts because they still believe in the idea. Some of the supervisors express that these demands are really competitive but they like to continue struggling with them.

Discussion

A basic assumption in our project was that the study context and the learning process are integrated. Thus, the results of the project should be understood in relation to teacher education as a specific study context. Students orient themselves in line with how situations and demands are understood, what counts as knowledge and how tasks are supposed to be performed and reported. From our study, we conclude that the thesis can contribute to more research-oriented approaches and analytic attitudes in teacher education.

When being asked what you can learn from writing a thesis, the students mention such things as "better insights", "deeper understanding" and "specialization in the subject area" of their study. Other knowledge and skills concern what they understand as a scientific way of thinking and working. This includes applying research methods and writing in a specific genre. Also, students seem to have realized the value of such knowledge and skills for their future work. They find it important to have written a thesis. What you can learn from a thesis is perceived as useful in a general sense in teachers' work.

We argue that the thesis has improved the quality of the teacher programme considerably. Courses that precede the thesis have more research-oriented contents and forms of working than before. Furthermore, supervising students' work with a thesis has been favourable to the teachers in the programme who earlier had little experience of it. According to a majority of the students, writing a thesis means a better preparation for teachers' work. And, hopefully, this will be favourable to schools, teachers' work and teacher students' opportunities to participate in research studies.

In our view, the thesis is a great opportunity for teacher students to influence their education. Firstly, they choose the topics that they study and write about. In this choice they can profile their education as well as compensate for content they have missed earlier in the programme. Secondly, group-supervision

provides them with opportunities to formulate and express their needs at different stages in the process of reading and writing. This, however, is a weak point. The students are pressed for time in their work and feel that they have enough to do with their own thesis. Many get properly started too late. Therefore, they have no substantial texts to discuss. The culture of teacher education - despite research-oriented contents - seems to be a hindrance to critical reading of work in progress. Students are afraid to criticize each other's work and cannot see the value of scrutinizing texts. Rather, praise and few comments are perceived as desirable.

This is a great challenge for the supervisors, especially when it comes to inducing students to engage in each other's texts. They have not yet found a suitable way of dealing with these demands. On the other hand, supervisors are able to see the advantages with group supervision and they are willing to further investigate the possibilities and pitfalls in developing their role. In the project, several models of group supervision have been developed but it is impossible to recommend one specific model. To make group supervision efficient for learning, for bridging the gap between theory and practice, it must be very close to students' needs and questions within a framework that the supervisors have organized.

There is an ongoing discussion about the thesis among students and teachers, formally, in courses and meetings, as well as informally, during breaks and coffee time, in groups and between individuals. The thesis, which is on quite a high academic level, has engaged teacher educators to introduce more academic content in many courses as a preparation for this extensive work by the end of the education. Our way of working with development of the thesis and models for group-supervision will continue due to students and teachers who have been challenged and inspired. This work will continue within the existing ordinary scheme of courses and specific seminars.

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Authors

Elisabeth Ahlstrand
Department of Behavioural Sciences
S-581 83 Linköping
eliah@ibv.liu.se

Kerstin Bergqvist

Department of Behavioural Sciences
S-581 83 Linköping
kerbe@ibv.liu.se