Collaboration in groups during teacher education
Dobber, M.

Note: To cite this publication please use the final published version (if applicable).

Chapter 5

Student teachers' collaborative inquiry:
Small-scale research projects during teacher education[6]

Teacher research is increasingly described as an important aspect of professional development. In response to this emphasis on the value of teacher research throughout teachers' careers, teacher education programs have started to prepare student teachers for this part of their professional life. In this study, we will report on the collaborative inquiry processes of two groups of student teachers, with the focus on elaboration and decision making during the inquiry process. We found that in one group, there was a difference between the preferences of the group members, which led to a balanced use of elaboration and decision making. In the other group, the group members did not engage in these processes in a conscious way, which led to an arduous research process. We argue that a balanced approach, in which elaboration and decision making alternate, is desirable.

---

[6] Submitted for publication in adapted form as: Dobber, M., Akkerman, S.F.,Verloop, N. & Vermunt, J.D. Student teachers' collaborative inquiry: Small-scale research projects during teacher education.

5.1 Introduction

Teacher research is increasingly described as an important aspect of professional development (Campbell, MacNamara, & Gilroy, 2004). In response to this emphasis on the value of teacher research throughout teachers' careers, teacher education programs have started to prepare student teachers for this part of their professional life (e.g., Burn, 2007; Hiebert, Morris, Berk, & Jansen, 2007). Hammerness, Darling-Hammond, and Bransford (2005) found that graduates from teacher education programs which make extensive use of teacher research reported significantly higher feelings of preparedness and were rated more highly by employers.

According to Cochran-Smith, Barnatt, Friedman, and Pine (2009), inquiry in teacher education aims to encourage student teachers to engage in critical reflection, develop a questioning stance, understand the school culture, construct new curricula and pedagogy, modify instructions to meet students' needs and become socialized into teaching by participating in learning communities. These authors, based on the work of Cochran-Smith and Lytle (1999, 2009), discuss an important distinction between *inquiry as stance* and *inquiry as project*, advocating that the former should be the ultimate aim. Inquiry as stance is a "long-term and consistent positioning or way of seeing" (Cochran-Smith et al., 2009, p. 22), while inquiry as project is a time-bound activity within a teacher education course. In the case of inquiry as stance, inquiry becomes an inherent part of professional teaching practice, instead of being a single point in time or a single activity. Working from an inquiring stance thus means that "every site of professional practice becomes a potential site of inquiry" (Cochran-Smith & Lytle, 2009, p. 121).

In line with the idea of inquiry as stance, Hiebert et al. (2007) propose a framework with the aim of designing teacher education programs that prepare student teachers to learn from teaching. Within this framework, the analysis of teaching practices as a form of inquiry is central. These researchers propose to prepare student teachers for deliberate and systematic analysis of their own practice, which continues when they enter the profession. Burn (2007) describes an action research project for student teachers and experienced teachers as a means for continuing development. Parkinson (2009) shows that being engaged in collaborative action research during teacher education can bring about a shift in the perception of the role and needs of student teachers, leading to a more reflective stance towards their (future) practice.

In summary, conducting research is described as a promising activity in educating student teachers, but only when it is done in a purposeful, deliberate and reflective way. Our study is concerned with research groups which are situated in a Dutch teacher education program. The goal of this program is to let groups of student teachers perform an inquiry project into their own practices, with the primary aim of acquiring research skills.

Some time ago, the goal of teacher research in this program was mostly focused on reflection. That led to an approach in which research became marginalized. Due to the fact that this marginalized position of research was found to be unfit for an academic Master's course, the research project had been altered shortly before the data were collected for this study. Due to these recent changes within the program, our study aimed to investigate the ways in which inquiry as project and inquiry as stance were incorporated into the program.

In line with our aim of gaining insight into inquiry as project and inquiry as stance, we focused on two inquiry processes within two research groups in teacher education. The first process was *decision making*. This process becomes visible when group members decide to take a certain direction in their research project, which closes the door on other directions. Decision making is generally goal-directed and is recorded in products such as a report from a meeting. When most time is spent on decision making, a group is only directed at finishing a certain task and thus inquiry is only seen as a time-bound project.

The second inquiry process is *elaboration*. This process becomes visible when group members engage in a thorough discussion of a particular topic. During such elaboration, student teachers try to find meaning within their research project. We argue that spending time on both decision making and elaboration during a research project is in line with the idea of inquiry as stance, as decision making is goal-directed and thus leads to outcomes while elaboration challenges student teachers to discuss their ways of seeing and to position themselves. Our research question is: *What role do elaboration and decision making play in the inquiry process of research groups in teacher education?*

5.2 Teacher research

We have already witnessed a significant movement towards teacher research, which, according to Zeichner and Noffke (2001), started in the 1950s. Cochran-Smith and Lytle (1999) describe how a renewed interest in this topic has emerged since the late 1980s as a result of a shift in the way of thinking about teachers. They have become increasingly recognized as "knowers" and "thinkers", who should play an active role in research and who have unique knowledge regarding their own classrooms.

Teacher research is motivated by different aims, which can also be pursued simultaneously. The first is the professional development of teachers (e.g., Bianchini & Cavazos, 2007; Furlong & Salisbury, 2005; Mitchell, Reilly, & Logue, 2009; Sperling & DiPardo, 2008), which can be focused on cognitive outcomes, such as knowing more about practice, as well as on emotional or motivational outcomes such as empowerment, confidence and self-awareness. The second aim of teacher research is to improve certain aspects of pupil or student outcomes. This is done by changing practices during the research

or by informing practice afterwards (e.g., Bulterman-Bos, 2008; Castle, 2006; Cooper & Cowie, 2010; Lunenberg, Ponte, & Van de Ven, 2007). The third aim is to influence (school) policy on the basis of research outcomes (Castle, 2006; Davis, Kiely, & Ashkam, 2009; Sperling & DiPardo, 2008), which is sometimes described as related to social change in a broader sense. Overlapping with the previous aim, the fourth aim is to contribute to the wider community of teachers, both informally and formally, for example through presentations and publications (Castle, 2006; Sperling & DiPardo, 2008). Finally, some authors have also mentioned the potential contribution to (scientific) theory (Davis et al., 2009; Saunders, 2004; Zeichner & Noffke, 2001), whereas other authors doubt whether this is or even should be an aim (e.g., Furlong & Salisbury, 2005). These other authors argue that teacher research should not necessarily be the same kind of research as in educational science, set against the same criteria (Cochran-Smith & Lytle, 1999; Zeichner & Noffke, 2001).

A few studies have reported successful teacher research projects (Hall, 2009; Mitchell et al., 2009; Zeichner, 2003; Zeichner & Nofke, 2001), but many studies have concluded that teachers find it very difficult to conduct research (e.g., Atay, 2008; Bianchini & Cavazos, 2007; Lunenberg et al., 2007). Therefore, the aforementioned aims are often not reached. Many studies emphasize the conditions that need to be met, such as the necessary time and resources for teachers to engage in research. Another important condition is the need for a teacher community in which teachers share results or collaborate in order to conduct research (Cochran-Smith & Lytle, 2009; Lunenberg et al., 2007; Zeichner, 2003). On the other hand, collaboration is also described as a possible complicating factor in research endeavors (Atay, 2008; Bianchini & Cavazos, 2007; Lunenberg et al., 2007), and so it is relevant to look more precisely at how such a shared process takes shape.

5.3 Inquiry as collaborative process

According to Pontecorvo (2007) collaboration is an important tool for any type of learning and for socialization into research practice. At the same time, different authors argue that collaboration during inquiry requires more thorough preparation when compared with individual inquiry practices. Frankham and Howes (2006) on the other hand, advocate that working with disturbances during the set-up of a collaborative research project might help to establish a basis for a collaborative relationship. Kuiper, Volman, and Terwel (2009) describe the conditions that need to be met in collaborative inquiry activities. The purpose of the project should be shared between the participants, who should rely on each other's knowledge and skills and share knowledge. In their study, these conditions led to a

high level of motivation and the accumulation of knowledge. Wells (2001) advocates reflection across a group as a whole, which, according to him, can contribute to the construction of knowledge. Paulus, Woodside and Siegler (2010), as well as Zittoun, Baucal, Cornish, and Gillespie (2007), stress the importance of the development of knowledge on collaborative processes.

As collaboration during research is argued to be demanding, it is relevant to study the ways in which collaborative research processes actually take place. In the literature on collaborative teacher inquiry, three aspects of research processes are discerned, namely a focusing and planning period, the implementation of a teaching action and a period of assessment/evaluation and dissemination (Nelson, 2009; Slavit & Nelson, 2010). This model of teacher inquiry is not only aimed at researching current practices, but also at changing these practices, which happens by collaboratively implementing actions within the classroom. As we want to describe a type of inquiry that is not necessarily aimed at changing practices, we will describe our results using a more general distinction between the typical research phases: designing and writing a research proposal, gathering data, analyzing data and deriving results and conclusions, and reporting the research results (cf. Akkerman, Admiraal, Brekelmans, & Oost, 2008). Describing the processes within the student teacher research groups in each of these phases will allow us to study and compare the collaborative inquiry processes of the groups in detail.

5.4 Method

5.4.1 Participants

This study was conducted in a post-graduate teacher education program in the Netherlands. This one-year program hosts about 150 student teachers per year, teaching 19 different school subjects. The student teachers spend half of their time at an internship or job at a school and the other half at the institute. A more thorough description of the teacher education program in question can be found in Chapters 2 and 3. One of the activities in the second semester is a small-scale educational research project, in which groups of student teachers collaborate. We conducted an in-depth qualitative case study of all of the meetings of two student teacher research groups in 2008 and 2010. Both of these groups consisted of three group members, two female and one male.

5.4.2 Design of the program

The members of the groups already knew each other from other activities at the teacher education institute when they started to collaborate within these research groups. In the beginning, the groups participated in three workshops as part of larger groups of about 20 student teachers. These workshops were given by researchers from the teacher education institute. Before the beginning of these workshops, the student teachers received a syllabus, which consisted of information about the demands of the program, planning etc. During these workshops, the groups of student teachers were gradually prepared on their research project in terms of methodological knowledge and guidance in writing a research plan. Before each workshop, the groups had to hand in worksheets which together led to a research plan. They received feedback on their worksheets from the researchers as well as from their peer group through an electronic learning environment. After these workshops, the research plans of the groups had to be approved by the researchers, and approval was indicated by a "green light". The groups then started to work on their research projects, during which they were supervised by a teacher educator, whom they could call on when they needed help but who also assessed their work at the end. The student teachers were required to carry out a research project in their own schools, resulting in a presentation at a conference at the teacher education institute and an article.

5.4.3 Procedure

This is an in-depth qualitative case study (Miles & Huberman, 1994). We collected data by videotaping most of the meetings of each of the research groups. We also asked the group members to send on their email correspondence and we had access to the electronic learning environment that was used during the workshops. After each group's final meeting, each group member was interviewed via a stimulated recall procedure (Calderhead, 1981). They were first asked to choose some moments from the previous meeting which they could clearly remember. After this, these moments, as well as the beginning and end of the video, were shown to them. They were asked to report what went on in their minds during the meeting. When necessary, questions were asked about what they did, thought, felt and wanted at that moment (these questions were derived from the questions in the digital logs of Meirink, Meijer, & Verloop, 2007). The researcher asked the student teachers to only report the things that had gone on in their minds in the moment itself, and not what they thought retrospectively while watching the video. These interviews were fully transcribed.

5.4.4 Analysis

We studied the two case studies in depth, using the steps of designing and writing the research proposal, gathering data, analyzing the data and deriving results and conclusions, and reporting the research results (Akkerman, Admiraal, Brekelmans, & Oost, 2008) as structuring concepts. We conducted discourse analysis of the interactions (Taylor, 2001), contained in all of the video data from the meetings. From this analysis, we summarized the inquiry processes during each of the inquiry steps. We also analyzed the electronic material from both groups, and the transcriptions of the stimulated recall interviews. These data sources were used to supplement of the video data.

Within each of the research phases, we distinguished between the two inquiry processes of elaboration and decision making. These two processes can be employed in a strict sequence or alternated. There can also be a tension between these processes. Such a tension can manifest itself between group members, for example when one group member wants to engage in decision making while the others want to elaborate. We described in each of the research phases what role each of these processes had played.

We conducted an audit procedure (Akkerman, et al, 2008) in order to validate the data collection, analysis and synthesis of this study. An independent researcher audited each step of the analysis, in order to determine whether the results and conclusions drawn in this article are grounded in the data in a visible, comprehensible and acceptable (reliable and valid) way. The auditor concluded that the quality of the research steps was satisfactory.

5.5 Results

We will now describe the results of both case studies in each research phase. For each phase, we will first describe what happened, after which we will interpret this description in terms of elaboration and decision making. We will discuss the contrasting inquiry processes of the two groups in the conclusions section.

Case 1: Ina, Rosanne and Wilfred

 Phase 1: Designing and writing the research proposal

During the workshops, the group had to provide the supervising researcher with different worksheets, which together comprised a research plan. In the beginning, both within the workshops as well as during their own meetings in between, the student teachers spent time on elaborating when deciding on the topic of their research. They did so by thoroughly

discussing the pros and cons of different potential research topics and by allowing each group member to put forward his or her ideas. The group was also active in making appointments with researchers and in keeping their supervising researcher informed. Their plans changed radically at two points during this process, in that they changed their research question when they found another one which was more relevant. They also elaborated on what data to collect and what instruments they needed for data collection. In the end, they made the decision to focus their inquiry on the topic of the supervision of beginning teachers. After getting a "green light" for their plan shortly after the last workshop, they could start gathering data.

Wilfred was the most active group member in terms of making summaries of meetings. He said at one point during this phase: "We shouldn't lose it, as happens so often". This remark, as well as the fact that he was focused on writing summaries of the discussions which occurred in their meetings, illustrates his focus on decision making. He emphasized the importance of sticking with previously made decisions, and felt that the group did not do so enough. As such, there seemed to be tension for Wilfred between the most common practice of the group and his own preferences. His tendency towards decision making was also reflected in a comment he made about not being interested in the set-up of Rosanne's data collection. His remarks consistently indicated that he only wanted to be involved with the other group members when it was necessary for the task, and not for the sake of thinking the task through, so that the group could work as efficiently as possible. As such, Wilfred was the gate-keeper who ensured that the group made final decisions about how to proceed.

Phase 2: Gathering data

In between the workshops, the group members had already been working on data collection tools. They asked for help from a researcher who was a specialist in their research topic. Rosanne insisted on keeping this researcher informed, which she underlined with her remark "I'm sort of in charge of the communication". The other two did not find it necessary to keep the researcher informed. The group first elaborated on what data to gather and what tools they needed during a meeting. They considered, for example, what teachers to include (i.e., teachers who had just finished teacher education only or teachers who came from another school as well). Based on the pros and cons, they decided to keep their focus on "real" beginning teachers. After that, the work was distributed among the group members and they commented on each other's work. Each of the student teachers collected data at his or her own school, by interviewing a supervision coordinator and using questionnaires. In between, they kept each other informed on what they were working on via email.

During the actual data gathering process, very little elaboration took place, as each group member was focused on gathering data at his or her own school. As such, making decisions and following them through was central within this phase.

Phase 3: Analyzing data and deriving results and conclusions

After gathering data individually, the group members met again in order to analyze the data and discuss the results. They asked a relative of one of the group members for help using the statistical analysis program SPSS during analysis. All of the group members went to see this relative on a Saturday and they analyzed the data together. Once again, they divided the work that had to be done, so that every group member became responsible for a certain part of the article. In this group, writing the article and deriving the results and conclusions happened simultaneously.

During this phase, goal-directed decision making was central to the activities of the group members. By dividing up the work, each group member became responsible for a certain task (e.g., writing the conclusions paragraph) and they sent emails to each other informing one another about their progress.

Phase 4: Reporting the research results

In the final meeting before their presentation, the student teachers elaborated on which approach they should take in the presentation and the article. They felt the pressure of time, which is reflected in the following remark which Ina made during the stimulated recall interview:

> Yes, then I thought, I do want to make clear, indeed, that I see something in everything. But we do have to come to a compromise, because you do not have time to think about things for a long time.

This excerpt shows that Ina felt that there was a tension between decision making and elaboration. Due to time constrains, she felt that the process of elaboration should not take too long, as the group had to make a lot of decisions during the meeting. The elaboration was frequently cut short by Wilfred. In the following excerpt, Wilfred clearly shows that he was inclined towards decision making much more than towards elaboration. "At this moment I was thinking, this discussion about exactly what we are going to do is taking far too long". He told the others that he was busy with other things, both at school and at the institute, and had not done his part of the work. The others made cynical jokes in response to this, but also asked him to contribute to the discussion. As Rosanne said during the stimulated recall interview:

Yes, I thought that was good, like, Wilfred was really looking a bit dazed, like, let these woman chat for a while. And then I say first: "Yes, Wilfred, what is your idea now really?" Then you see that he has already thought it out in his head, and that he had thought: "Yes, we are just going to do this, actually."

Rosanne indicated that she expected Wilfred to contribute to the discussion that she and Ina were engaging in, and also explicitly asked him to do so. At the end of this meeting, Ina and Rosanne said that in the coming week, Wilfred had to do more, as they had already done most of the work. The group members once again divided up the work and each of them was responsible for writing a certain part of the article and preparing a part of the presentation. They kept each other informed of what they were working on by email. After their presentation, the article written by this group was approved by the supervising teacher educator. The group members were happy with their positive results and were proud of themselves and their teamwork.

Here, just as in the first step, there was a significant difference between what Wilfred wanted and what the other two wanted. This time, Ina and Rosanne engaged in elaboration and expected Wilfred to contribute. He showed that he had other priorities by working on another assignment, which he had to do for his teacher education, during the meeting, but engaged in the elaboration process reluctantly because of pressure from the other group members. The group shifted between elaboration and decision making frequently during this phase, as all of the group members felt under pressure to finish their project on time. At the same time, Ina and Rosanne became gate-keepers for elaboration, so that the decisions made were grounded in discussion and in the weighing up of alternatives.

Case 2: Tom, Francis and Eva

Phase 1: Designing and writing the research proposal

This group started by spending a lot of time at the beginning of their project on elaborating on the subject of their research, for example by discussing definitions and considering various options, and on developing their research instruments. They also sought after theoretical input. In between the meetings, all of the group members read articles, which they also discussed during the meetings. After the first workshop, the group had received feedback on their research plan from the supervising researcher. In their first meeting outside of the workshops, the group members elaborated to some degree on the research plan, but they quickly decided to make the changes which had been suggested by the supervising researcher. At the end of the meetings and workshops, the group divided up the tasks, so that each group member would revise certain parts of the proposal themselves.

More than once, one or more of the group members indicated that they had not done their share of the work at the beginning of the meetings. As a result, the group spent time during their meetings on the tasks that the group members had agreed to do in between. The group's worksheets were given a "red light" by the researcher, which meant that the group had to correct them and hand them in again, which they did shortly afterwards.

It appears that in this phase, the group was neither focused on elaboration nor focused on decision making. The group spent a lot of time collaboratively writing the research proposal, as a response to some group members not having done their part of the work. This delayed the process and the research proposal put forward by the group was negatively assessed.

Phase 2: Gathering data

After their worksheet was approved, the group did not meet for one and a half months. Then Tom sent an email, proposing to meet. Francis responded on the same day by emailing a document in which she had already answered the first research question. The group discussed what had to be done in order to collect data quickly and split the work between Tom and Eva, as Francis had already answered the first research question. The group met again two weeks later. Once again, they divided the tasks at the end of the meeting and also discussed the question of when the data had to be collected. Each group member collected data at his or her own school. They merged the data afterwards.

During this phase, the group began with a long period of inactivity. After that, they planned a meeting. It seems that given the small amount of time that was left, the group made quick decisions out of necessity, without any collaborative elaboration.

Phase 3: Analyzing data and deriving results and conclusions

The group members met again two weeks later to analyze the data and to work on the results. A few days later, they had a meeting with their supervising teacher educator. They sent him some documents beforehand. The teacher educator made it clear that he was unpleasantly surprised by the documents, and that he was not convinced that the group would have enough material to actually present their work the following week. It transpired that Tom had sent wrong versions of the material to the teacher educator. Together with the teacher educator, they talked about what they would have to do in order to present their work at the conference. The student teachers had to send their new material to the teacher educator, so that he could provide them with feedback. After this meeting, the group members were all a somewhat shocked and started to work very hard in order to get things done. One of the group members had a partner who knew how to work with the statistical

analysis program SPSS, and so they had help in carrying out their analysis. After that, they met again to elaborate upon their results and conclusions.

During this phase, the shortage of time and the requirements of the program resulted in a conflict with the teacher educator. The student teachers had to engage in rapid, goal-directed decision making, as they had to produce documents for their presentation. Time for elaboration became very scarce, although the group tried to increase the time they had by planning long meetings with each other.

Phase 4: Reporting the research results

The group worked on their presentation and article at the same time as the analysis, as a result of a lack of time. In order to work on the presentation and the article, the group members divided up the work, so that everyone had something to do. Afterwards, they gave feedback on each other's work. On the day of the conference, the group came together just before their presentation in order to decide upon distribution of tasks for their presentation. They then presented the results of their research project, each taking on a part of the presentation. After the presentation, the group came together to discuss the written feedback which they had received from the audience. The group also discussed what had to be done before the article could be sent to the teacher educator and divided up the tasks which needed to be done.

The final group meeting was with the supervising teacher educator who gave them some feedback on the article which the group then had to incorporate. The fact that most of the work had been done by one person led to uncertainty for the group members, as Eva indicated during the stimulated recall interview:

So I was really wondering, what [the teacher educator] asked here, could we easily manage that? Because I do not know were she got it from, whether she really had read the whole article, or if she got it from another article.

This excerpt shows the uncomfortable feelings which group members can experience when each member becomes responsible for a product which is important to everyone, and which has not been written as a collaborative product. At the end of this meeting, the group members set a date when they would email the next version to the teacher educator. The group members divided up the work and once again gave feedback on each other's documents. At the end, the teacher educator asked the student teachers what they had learned from this research process. Tom was critical and said that he had learned not to engage in research anymore, while the other two expressed similar feelings, albeit to a lesser extent. After this conversation, the student teachers adapted the article once again and it was approved by the teacher educator.

During this phase, the group spent a lot of time on their research project, but they usually worked separately. The group members felt uncomfortable about not knowing what the other group members were working on. At the same time, the program asked for a decision-making approach, leading towards an article.

5.6 Conclusions

We studied the inquiry processes of two research groups in teacher education with the aim of answering the research question: *How are elaboration and decision making used within two research groups in teacher education?* Whereas sole decision making is associated with task-oriented work and therefore with the idea of "inquiry as project", engaging in both elaboration and decision making is associated with taking "inquiry as stance". We considered the ways in which the groups engaged in these processes within subsequent research steps (designing and writing a research proposal, gathering data, analyzing data and deriving results and conclusions, and reporting the research results).

The first research group demonstrated an inquiry process which included both decision making and elaboration. One of the group members (Wilfred) turned out to be the gate-keeper for decision making, while the other two group members were gate-keepers for elaboration. During the different research phases, most of the time was spent on either one of these processes, but during each phase, the gate-keepers made sure that attention was directed towards both. As such, because of the difference in preferences between the group members towards the two research processes, elaboration and decision making took place in a balanced way throughout the research process as a whole. For example, within the first and the last phase, Wilfred showed impatience when he considered that too much time was being spent on elaboration, and so he tried to shift the process towards decision making. During the second and third phases, the whole group automatically shifted towards decision making after short phases of elaboration automatically, because of the time frame of the activities in these phases. The group members indicated that they felt a tension between spending time on thinking through and discussing alternatives (elaboration) and making choices in order to proceed (decision making). Nonetheless, this tension was resolved in a productive way by shifting between the processes when necessary. This enabled the group to meet the requirements of the program, producing the desired (in-between) products as collaborative products. It also led them to feel positive about their research process at the end of the project.

In contrast with the first group, in the second group both thorough and deliberate decision making and elaboration were scarce. The second group was inactive during several stages of the project, and when they were active they were mostly focused on an undirected

form of discussion as a result of the group members not having completed their tasks. This group had difficulty meeting the requirements of the program from the beginning. Although they began by elaborating on possible research directions and by writing a research plan, their process was undirected and time-consuming. During the final phases, the group was trying very hard to fulfill the requirements of the program, which they did mostly by performing parts of the research independently, with very little shared elaboration. They were trying to finish their project in time and, as a result, made quick, ad hoc decisions, instead of more deliberate decisions based on elaboration on alternatives. This group told the supervising teacher educator at the end that they were not interested in doing research in the future. This indicates that they, both during and afterwards did not develop an inquiring stance.

When considering the results of both of these research groups, it appears that both decision making and elaboration are necessary elements to reach the full potential of a collaborative research project. The second group engaged in neither of these processes in a deliberate and thorough way throughout their research project, which caused their project to be arduous and also led to a critical stance towards research. The first group, on the other hand, engaged in elaboration and decision making in an iterative way throughout the whole project. A group that engages in such a cyclical process starts with elaboration on a certain topic, after which the group is able to make an informed decision. Then, a new phase of elaboration can take place, etc. In such a process, the two processes of elaboration and decision making are balanced and mutually enriching.

Our findings also suggest that it is unnecessary to treat "inquiry as stance" and "inquiry as project" as opposites, as proposed by Cochran-Smith et al. (2009). The first group that was studied showed that it is possible to maintain inquiry as stance and to develop a positive attitude towards research in the context of a time-bound research project. However, the second group showed that this cannot be expected automatically, and a great deal seems to depend on the group and their collaborative process.

Our results correspond with the view in the literature that collaborative research is demanding (Atay, 2008; Bianchini & Cavazos, 2007; Lunenberg et al., 2007). We have shown that a research activity in which student teachers are supposed to collaborate is challenging and requires hard work. Alongside everything else that student teachers have to do for both the institute and at school, they feel under pressure of time. At the same time, the demands of the research project were quite high, and the student teachers had not been involved in this type of research before. A further complication is that three student teachers had to collaborate on one product, which had consequences for each of them in terms of receiving the teaching certificate. As such, they were each dependent on the others for their personal gain. These high demands were felt despite their grounded preparation by the teacher educators and researchers towards a clear-cut research plan and methodological

assistance at the beginning of the project. As such, it might have become tempting for the groups to concentrate on quick, ad hoc decision making, which relates to the arguments of Cochran-Smith et al. (2009) against inquiry as project. We maintain that more deliberate attention should be paid to the collaborative inquiry process, specifically elaboration and decision making, as this would allow teacher education programs to prepare and guide student teachers during research projects towards inquiry as stance.

We investigated two groups of three student teachers within a teacher education program. As such, generalizing these results to other groups or other teacher education programs is not possible. The relevance of our study lies in the description of the research processes of elaboration and decision making within the context of collaborative student teacher research. In order to see the value of these processes in other teacher research projects, other collaborative research projects should be studied, both within teacher education and in schools.