LEARNING OUTCOMES OF UNIVERSITY LECTURERS FROM A PROCESS-ORIENTED UNIVERSITY PEDAGOGICAL COURSE

Laura Hirsto[1], Maija Lampinen[2], and Maire Syrjäkari[2]

[1]*University of Helsinki and* [2]*Aalto University*

Abstract. Learning outcomes from a one-year long collaborative inquiry-oriented pedagogical training course for university lecturers were investigated in this study. The course was a long-term, process-oriented university pedagogical course with students from different disciplinary backgrounds, and it was based on the idea of a community of practice and collaborative inquiry learning. The focus of the course was designing learning environment, process facilitation and supporting structures, but the content was not determined in advance; instead, the students produced the content based on their experiences, shortfalls in their current teaching competence and knowledge, and also the educational development needs of their working environment. The follow-up data were collected through questionnaires with open-ended questions on different phases of the course; group electronic learning logs were used as complementary data. According to the results, the long-term collaborative inquiry-oriented pedagogical training achieved pre-defined learning outcomes even though the actual content of the course was not pre-determined, and even went beyond them, especially in terms of empowerment.

Keywords: university teacher education, collaborative inquiry, process-oriented course, university pedagogy

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1. Introduction

Global trends such as educating a growing number of students, increasingly multicultural and heterogeneous student groups, the need to lengthen working careers as well as to increase the pace at which academic studies are completed, have imposed new challenges for universities and their teachers. This has increased the importance of educational or pedagogical training for university lecturers and professors in recent years. Boyer (1990) suggested that university professors, and especially university institutions, should reconsider and widen

their conception of academic scholarship. By paying more attention to the scholarship of teaching more emphasis would be given to the enhancement of the quality of teaching (Boyer 1990). One important means of developing the quality of teaching within the scholarship of teaching framework would be the idea of academics from different fields also conducting research into teaching and learning. While suggesting a more comprehensive model of the scholarship of teaching, Kreber and Cranton (2000) also considered the use of teaching and learning research important in the development of university teaching.

The OECD has recently completed a wide analysis of the pedagogical and professional development of primary and secondary school teachers (Scheerens 2010), according to which teachers feel that the most effective types of development are programmes leading to a qualification and research activities. Furthermore, according to Scheerens (2010), professional development activities that take place at regular intervals and involve teachers in a somewhat stable social and collaborative context (networks or mentoring) have a significantly stronger association with teaching practices than regular workshops and courses. These results from the school context, where teachers are often professionally qualified, cannot be directly applied to the university context, where teachers are usually researchers or academics with little or no pedagogical education.

University teachers are, nevertheless, professionals in their field of research, and they have their own experience of what it means to study and teach at a university. Therefore, we may approach their learning through professional development or the perspective of learning. There are different kinds of conceptualisations for professional development. According to an OECD report, effective professional development can be seen as an on-going process which includes training, practice and feedback and adequate time and follow-up support (OECD 2009). However, Loughran et al (2011) highlight the distinction between professional development (PD) and professional learning (PL). They argue that what we should be discussing is professional learning rather than professional development, as professional learning is about long-term collaboration with teachers to help them to develop their skills, knowledge and abilities in ways that are responsive to their pedagogical needs, issues and concerns. According to them, professional development practices are often short one-day sessions in which things are shown to teachers so that they can later apply them directly in their practice.

In the field of educational development, many different concepts have either been used interchangeably or in order to focus on different aspects of development; such concepts include, for example, faculty development, professional development, academic development, curriculum development and organizational development. In this article, the aim is to investigate a learning context which has both organizational or faculty development and personal or professional development aims. The aim of the course studied here was to go beyond the instructional or professional development of university teachers, utilize the approaches of professional learning (PL), and attempt to facilitate participants' efforts to develop their own department's teaching or curriculum. Thus, the idea was to work with

the university teachers to help them to develop their skills, knowledge and abilities in ways that were responsive to their needs, issues and concerns.

The organisational context of the course was a recently merged Finnish university with a centrally located teaching development unit providing pedagogical training for its teaching staff. The whole pedagogical training program included 60 ECTS credits (European Credit Transfer and Accumulation System), and it was divided into two parts (See Figure 1). As one ECTS credit equals approximately 27 hours of student work, 60 credits equals approximately one full year of studies. The main goal in the first part (25 ECTS credits) was to support the participants in the development of their teacher identity, and teaching skills. The main goal in the second part (35 ECTS credits) was to support the participants' role as educational developers in their own work communities and their ability to operate as active members in multidisciplinary research groups. Before they were able to proceed to the application process for the course, they needed to have completed at least 20 ECTS credits of pedagogical studies. The pilot course was called "Teacher as educational developer", and it was designed to be the core course of the Pedagogical training in Aalto University II.

During the 21st century, inquiry-oriented teaching has been given more emphasis in teacher education; however, despite robust scholarship at the conceptual level, there is a lack of studies investigating the results of inquiry-based teacher education (Schulz 2010). Consequently, this study investigated the learning processes and outcomes of university teachers in a phenomenon-centred inquiry environment and reflected on the collaborative inquiry process as an approach in university pedagogical studies. The specific context of this study was a long-term, process-oriented university pedagogical course developed at Aalto University in Finland. The students on the course came from different disciplinary backgrounds.
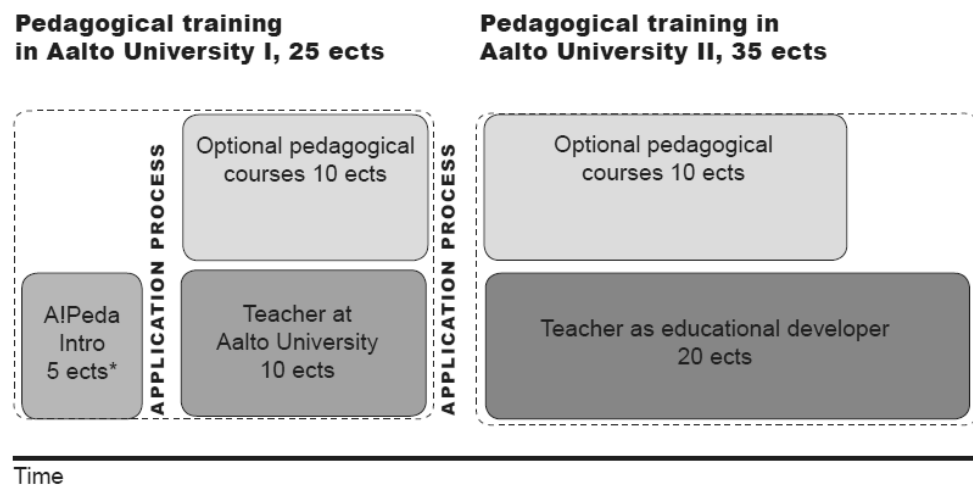

Figure 1. The structure of the 60 credit pedagogical training.

2. Theoretical viewpoints

The design of the course was based on the idea of a community of practice (Wenger 1998) and collaborative inquiry-learning (e.g. Heron 1996, Reason 2002, Sahlberg 2000, Hakkarainen, Lonka, and Lipponen 2004, Lakkala 2010, Muukkonen-van der Meer 2011). Decuyper, Dochy, and Van den Bossche's (2010) idea of team learning seems to include aspects from both communities of practice and collaborative inquiry-learning. They suggest that sharing, co-construction, constructive conflict, team reflexivity, team activity, boundary crossing, storage and retrieval are essential and interrelated in team learning. The progressive inquiry model (e.g. Hakkarainen, Lonka and Lipponen 2004, Lakkala 2010, Muukkonen-van der Meer 2011) and, especially, the idea of trialogical learning (Paavola and Hakkarainen 2005) stress that students' work on shared artefacts is important for knowledge creation. The main foci in the design of the course were the facilitation of shared artefacts, process facilitation and the provision of supportive structures.

One guideline for the course design was Wenger's (1998) idea that we cannot design learning, but we can design for it. The actual content, knowledge or concepts to be covered during the course were not determined. However, certain general issues that were related to the facilitative learning environment and a few general skills important to teacher development were determined. The aim of the course was to approach teaching as the creation of environments that support learners' efforts to construct meanings (Putnam 1996), thereby encouraging the participants to start to produce content for the course based on their needs, personal experiences and perspectives as teachers (Gross and Gilbert 2011), their current teaching competence and knowledge and, also, the educational development needs of their working environment.

According to Borko, Peressini, Romagnano, Knuth, Willis-Yorker, Wooley, Hovermill and Masarik (2000), it is the experiences on university courses and actual contextual teaching settings that are crucial for preparing teachers to adopt new methods. Furthermore, the compatibility of these settings is essential if they are to be mutually reinforcing and thus able to work in conjunction (Borko et al. 2000), Cochran-Smith (2001a, 2001b) also argues that we should eschew narrow definitions of learning where teaching is in a linear relationship with student outcomes.

The structure of the course was designed to give the participants two strong communities of practice (Wenger 1998, 1999) where they would have the chance to build their teacher identities: their disciplinary and working context (their faculty or unit) and the teacher education context (the course). This was in order to make concrete Wenger's original idea of "brokers", where those who belong to many different communities of practice are considered the most creative. In this sense, these university teachers had the potential of being or becoming creative in developing teaching in their teaching contexts. To Wenger (1998), learning is fundamentally social and context dependent; learning is to negotiate new meanings. The way we understand and define the concept of learning influences all aspects of

educational practice. Giving a central role to the negotiation of meaning is also consistent with Taylor and Rege Colet's (2009) suggestions that for educational development to take place we need theory, practice and shared discussion. Similarly, developing expertise, according to Tynjälä's (2008) integrative pedagogy model, requires not only theory and practice but also self-regulation and reflection. The shared discussion suggested by Taylor and Rege Colet may serve in Tynjälä's model as the mediating reflective tool through which theory, practice and self-regulation can turn into special expertise.

Reflection is often seen as a key skill for teachers to develop their teaching. In his classic work, Schön (e.g. 1983) referred to reflection-in-action and reflection-on-action. For a teacher, reflection-in-action would mean active reflection during actual teaching and reflection-on-action would mean reflection after actual practice. To this Eraut (1995) has added the idea of reflection-for-practice, which would mean reflection about teaching before it takes place.

Furthermore, the means and methods of supervising and tutoring in a learning context were considered and discussed with the prospective tutors in great detail before the course started. Different kinds of models and ideas of tutoring and supervising (e.g. Barab, Barnett, and Squire 2002, Barrows and Tamblyn 1980, Hirsto 2004, Hirsto and Siitari 2004a, Hirsto and Siitari 2004b, Maudsley 1999, Schmidt and Moust 1995, Stokes 2003) were compared, and a shared idea of tutoring was negotiated. For example, in this negotiation the degree to which the course would rely on student and group self-regulation or tutor regulation as well as the focus of process vs. content tutoring were considered.

3. The course design

The students were informed about the pedagogical design and approach of the course in both the application material and the interview included in the entrance procedure. The course supervisors followed the progress and processes of the groups through face-to-face sessions and an e-platform where individuals and groups reflected on their learning processes and jointly built their inquiry processes and artefacts.

The course had five quite general learning outcomes, which were outlined in advance. First, the participants were to gain the ability to work as active members in an educational development group. Second, they were to be able to discern teaching and learning based on research. Third, they were to become acquainted with different research methods and use one method in an inquiry project. Fourth, they were to work in a multi-disciplinary group and be able to recognize group processes. Finally, the participants were supposed to be able to evaluate their actions in group project and support the group in reaching its goal.

The participants engaged in participation in two intensive, self-regulated small-groups (called inquiry groups). The learning tasks were divided into individual and group artefacts. The inquiry groups had to complete a written report on their collaborative inquiry theme and individuals had to write a written report about

their personal developmental projects. At the beginning of the course, the groups were asked to build their collaborative and individual inquiries in such a way that they would support each other. Both of these projects were discussed in the teaching sessions and inquiry group meetings.

The course was designed to last for one year and produce 20 ECTS. In this case, collaborative learning was seen to be embedded in the community of the small group (inquiry group), the whole course group and the community in which the participants worked at the university. The course was taught in Finnish.

Figure 2 presents the overview of the course. The "Group process" line no 4 in Figure 2 presents the working process of the research group. The students took care of cohesion, interaction and the atmosphere in their group to ensure the systematic and productive progression of group work. They also set their own goals, planned their studies, built their knowledge, and jointly reflected on and evaluated their learning and group processes. The groups met on face-to-face days and as often as they considered it necessary between these days. The groups wrote their reflections (Figure 2, no 1) in a web-based learning environment every time they met. The participants' written reflections (Figure 2, no 2) enabled the teachers to monitor the phases of the group processes and situations in the groups.

The "Individual process" (Figure 2, no 5) represents the process of individual workplace learning. At the beginning of the course, the participants discussed the course with their colleagues at their workplace and negotiated the educational development task or project to be planned and implemented during the course.
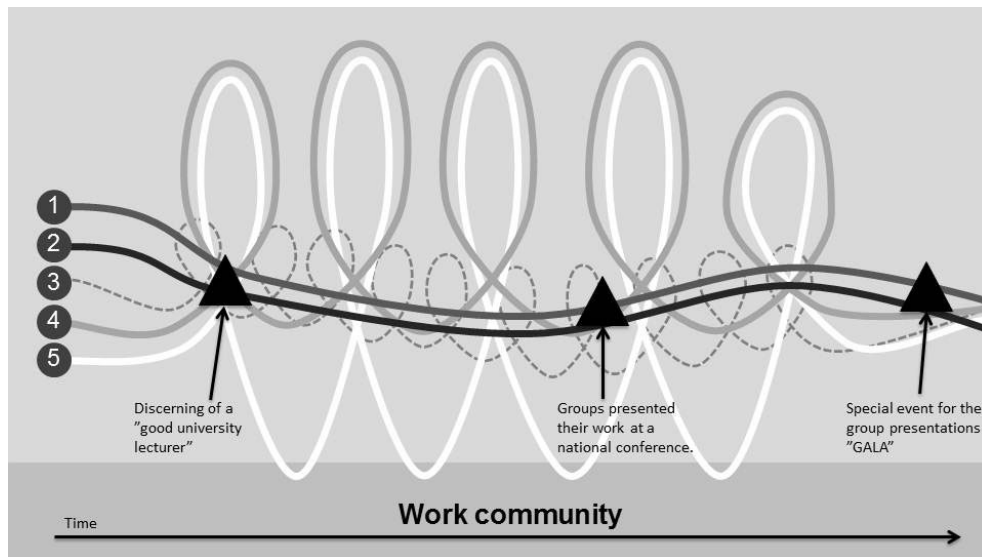

Figure 2. The cyclical processes of the course and the main predefined tasks.

The tutoring process (Figure 2, no 3) was the main support structure in this course. The instructors tried to enable a constructive learning environment in which learning could occur in social interaction.

The two inquiry groups started their processes by defining the idea of "a good university teacher". Through negotiating their shared understanding, these groups also chose the theme for their collaborative inquiry. The groups were also asked to prepare presentations on their inquiry themes to be given at a national higher education conference, and to organize a final seminar and presentations at their own university at the end of the course.

There were 12 face-to-face teaching sessions, and the small study groups always met between the face-to-face sessions to enhance the work of both the group and its members. Table 1 presents the themes of the face-to-face teaching sessions. The first few sessions were partly predesigned, and their themes concerned the actual ways of working during the course as well as the question of what it means to be a good teacher. Reflection has been thought to be a key element in teacher competence (e.g. Schön 1983), and the discussions showed that the students needed help in reflection, which is why the theme was chosen for a more thorough discussion in the early stages of the course. The fourth session was intended to support students in their developmental work in their own units. When the groups actually started doing their research projects, it became clear that qualitative methods were unfamiliar to the students with an engineering background, even though they had at least 20 ECTS credits in pedagogical studies behind them. These students were uncertain about decision making in qualitative research; therefore, they were given a seminar on the most common qualitative methods in the sixth teaching session. Otherwise the teaching sessions included peer-group work in different combinations, in order to allow the two inquiry groups to facilitate and share knowledge with each other. In addition, the inquiry groups interviewed a number of experts about their inquiry themes.

Table 1. The themes of the teaching sessions

Teaching session	Themes
1)&2)	Collaborative inquiry-learning* & group processes* & collaborative negotiations about what makes a good university teacher*
3)	Reflection*
4)	Workplace learning (Communities of Practice)*
5)	–
6)	Qualitative research methods
7)	The meaning of a curriculum in academic communities
8)	PedaForum-conference*
9)	–
10)	Idea of Future Learning Environments (FLE)
11)	–
12)	-GALA

*Predetermined themes

In this article, the original definitions and constructions of a good university teacher are used as the context in which both the learning paths and processes and the learning outcomes of the participants are investigated. The research questions were the following: 1) What kind of perceptions did university teachers as course participants have of their own personal learning paths and learning outcomes in a process-oriented teacher education program? 2) How did they feel the reflected learning outcomes compared with the predefined learning outcomes for the course?

4. Method

The participants were 16 junior and senior university lecturers from different fields of study in engineering and economics. Seven were female and nine were male. The data were collected from the participants during the year-long course. Two of the participants gained employment elsewhere and had to leave the course.

The data were collected through questionnaires completed by the course participants (N = 16) at the beginning of the programme (n = 16) (January), in the middle of the program (n = 15) (June) and in the end of the program (n = 12) (December). The questions were open-ended and concerned the participants' role in their working environment, their learning path and the process of becoming a good university teacher, the significance of the group for their learning, perceptions about tutoring, and their views of themselves as reflective practitioners. The questionnaires were administered during the face-to-face teaching sessions, but the participants were allowed to return the completed questionnaires either by email or at the next teaching session.

The data also included the groups' reflections after almost every face-to-face teaching and small group session (electronic logs g1 = 22 and g2 = 28) during the learning process about their groups' learning paths.

The groups' electronic logs were originally intended to reflect and record thoughts about the group's progress in their inquiry and questions and related ideas and insights, as well as group dynamics and functioning. The groups were also asked to write about their action plan for the next possible meeting. The groups also used the format of Gibbs (1988) reflective debriefing cycle, which includes six stages: description, feelings, evaluation, analysis, conclusion and action plan.

The aim was to investigate the reflections of the participants on their individual learning paths and learning outcomes and complement these viewpoints by analysing the joint reflections of the groups during the course. All the answers to the questionnaires were read through several times using content analysis, where two of the researchers first analysed the data individually, and then a common understanding was negotiated (co-researcher dialogue). Learning outcomes were emphasized in the participants responses towards the end of the course, but some issues clearly evolved early on in the course.

4. Results

The results are presented by first displaying the original definitions of a good teacher together with the chosen collaborative inquiry questions. Then, the participants' reflections on their own learning are analysed. Finally, the self-assessed learning outcomes are investigated in relation to the predefined learning outcomes of the course.

4.1. Original definitions of a good teacher and foci of collaborative inquiries

At the beginning of the course, the two inquiry groups were given the task of discerning the idea of "a good university teacher". Through the process of negotiating their shared understanding, these groups also chose a theme for their collaborative inquiry. These observations were analysed in relation to the formulations of the themes or categories developed during negotiations and reflected in the groups' e-platform (Figure 3 and Figure 4).

Others	Expertise	Students
-environment -collaboration with society and interest groups	-own field of expertise -pedagogical, psychological knowledge -collaboration with colleagues -knowhow on learning processes -continuous change and development -supervision and tutoring -teaching methods **University** -time for teaching as well as for research -possibilities to plan own work -creates a motivating learning environment -critical reflection -motivation -feedback skills -open communication -listening **Personal characteristics**	-scientific community -up to date research -understanding the needs of students -supports the learning processes of the students -developing courses according to student feedback -activates students -encourages students in difficult subject matters -good attitude towards students -motivating students through inspiring learning environments -caring for students

Figure 3. The original conceptualization of a good teacher (Group 1).

Resources
-facilities
-tools
-support
-continuity
-well-planned teaching

Expertise
-experts in their own field
-research based teaching
-teaching experience and
the lessons learned from it
-developing own knowhow
(research and teaching)

**Nexus -- expertise/ societal
impact**
-nexus between teaching
and working-life
-nexus between own one's
research and teaching
-training working-life skills

**A good
university
teacher**

Teacher characteristics
-personality, open-minded,
honest, interested, curious, brave,
human,sense of humor,
empathetic, inspiring, passionate
-skills to enhance interaction and
discussion
-flexibility to adjust to new
situations
-mutual respect and appreciation
(student,teacher)
-responsibility, equity
-good organizer, consistent
-encouraging, supporting
-interested in students
-good communication skills and
presentation skills

Pedagogical skills
-alignment of teaching,
collaborative planning
-explicit course-planning (sizing,
workload, timetable,
assessment)
-enhancing interaction
-learning centered thinking,
knowledge of learning
-facilitator of self-regulated
learning
-constructive feedback

Societal impact
-lifelong-learning
-sustainable development
-impact on working-life
-on-site visits to
corporations, visiting
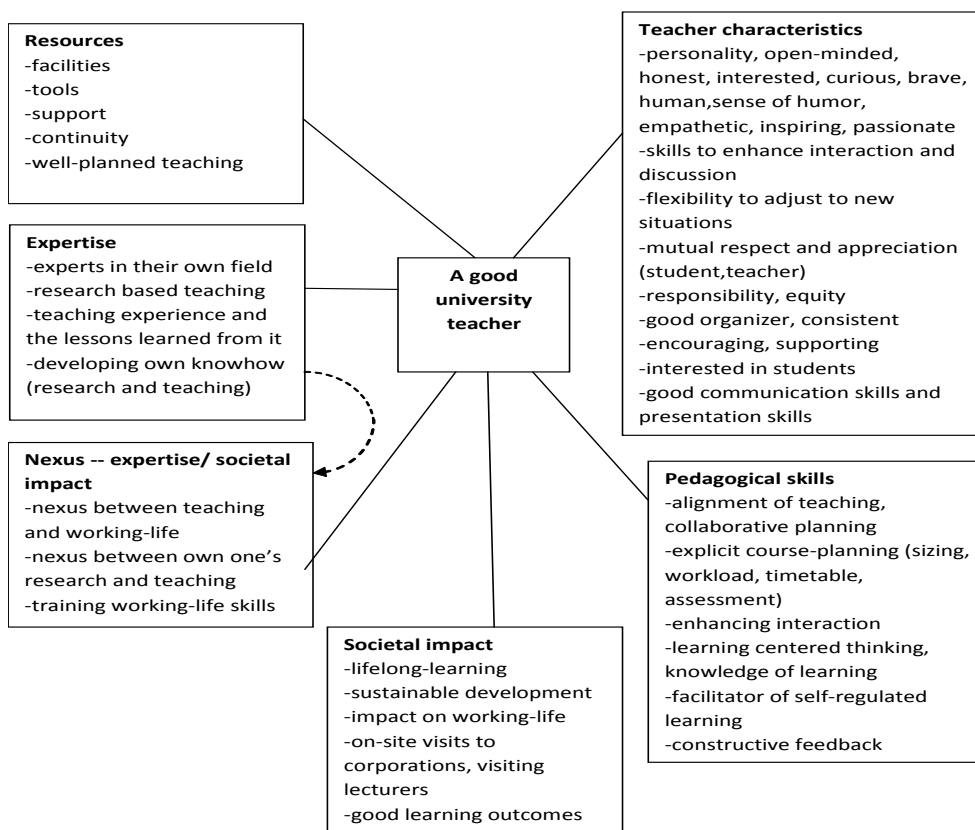lecturers
-good learning outcomes

Figure 4. Original conceptualization of a good teacher (Group 2).

On the basis of their conceptualization and mind-map, Group 1 decided to focus their collaborative inquiry on the joint theme of *motivation and expertise*. The sub-categories of the theme included the relationship between teaching methods and learning, research evidence on the relationship between students' active orientation, motivation and academic achievement, teaching generic skills and developing the students' expertise, developing expertise by learning by doing, achieving the learning outcomes, degree level curriculum work (learning out-comes, suitable teaching methods), facilitating students' motivation in learning situations, the students' responsibility for their own learning and the teacher's responsibility to motivate them, the potential of project based learning to enhance motivation and achievement of degree level learning outcomes, and better integrating research and teaching.

On the basis of their conceptualization and mind-map, Group 2 decided to focus their collaborative inquiry on the theme of the *holistic planning of education from the perspective of university students*. The preliminary inquiry sub-questions in Group 2 included the contextual investigation of holistic planning, a student-

centred approach in planning processes, and the role of integrative thinking about research and teaching in holistic educational planning. Group 2 also planned to integrate the perspectives of a learning organization, research-based learning and learning outcomes into their inquiry.

The two inquiry groups produced two different, but also somewhat similar, mind-maps about their idea of a good teacher. The instructions for both groups were similar, but the initial definition of a good university teacher seems to have had a different focus. The first group had a more general approach and the other a more contextualized approach. However, when analysing the inquiry questions, both groups incorporated general and contextualized perspectives. The first group included context, for example, in degree-level questions and project based learning, and the second group included general perspectives in the student-centred approach, the nexus between research and teaching, a learning organization and research-based teaching.

According to these mind-maps and questions defined for the collaborative inquiries, it seems that the university teacher groups defined what it meant to be a good university-teacher quite thoroughly and chose the focus for their collaborative inquiry in a contextualized way. Thus, it seems that the participants were able to formulate the framework for their curriculum in a meaningful way.

4.2. Participants' reflections on their own learning

On the basis of the analysis of their responses to the questionnaires, the course participants' perceptions of their learning paths were classified into four themes: 1) empowerment, 2) skills and knowledge, 3) group work and 4) network. These categories are not mutually exclusive; rather, they represent the themes that were found in the participants' answers. For example, empowerment also seemed to be related to developing know-how, and thus to the categories of skills and knowledge as well as network. Empowerment included students' views on building a stronger teacher and developer identity. The participants also felt that the course enhanced their role as educational developers in their working community. Here are some examples of the data translated from Finnish:

> *"In my disciplinary area, I am one of the leading educational developers. Nevertheless, in a professor-centred administration culture the possibilities for lecturers to have an effect are indirect. My role and position [as an educational developer in my working community] have become significantly stronger and deeper. I am now a member of [the local educational development committee], which has made my knowledge and capabilities more official."*(m2, December)

> *"Especially my own identity as a teacher has become stronger during this year. This has given me courage to act as a teacher, which means taking more responsibility for teaching, setting clearer goals, better understanding human beings and their reasoning and acknowledging that."* (m8, December)

> *"Getting to know very different kinds of good teachers has concretely shown me that one can be a good teacher in many different ways. One should, as much as*

possible, adjust his/her own strengths to teaching methods that are natural and suitable for oneself." (f4, December)

Skills and knowledge included the students' view that they had expanded their understanding of teaching, being a teacher and educational development. They had also developed their skills in acting as reflective practitioners and their skills of research-based development (the scholarship of teaching).

> *"During the last year I have developed in managing and understanding larger entities inside [my university].This perhaps does not show directly in my teaching, but it has had concrete effect in planning."*(m2, December)

> *"I have always been a "natural" reflecting person. One of the things the course offered was the chance to contemplate the working of our group through reflection as well as our own behaviours as group members. I had not practised anything like that and I realised that it was useful. I have started to reflect on my own behaviour as a supervisor and a member of a research group, also more widely on my own research work."* (m2, December)

> *"I have been able to widen my perspective about what it means to be a good teacher during this year. The contact days, visitors, group discussion, reading literature and interviews included in the collaborative inquiry have widened my perspectives on good teaching. I now know better where to look for information concerning educational development. Also, preparing a scientific presentation about education for an international conference [in my own field] based on our educational development task has helped to develop my teaching skills. It has been intriguing to have been able to do research related to educational development and to network with other colleagues. This was also supported by participation in a national educational development conference."(*f7, December)

The group work also included the participants' views on the significance of the group (providing support and space for pedagogical dialogue). The participants positively reflected on and evaluated group work based on collaborative learning, and during their own group work they did not recognise the weaknesses or threats that they had mentioned in reference to group work in general.

> *"...It is good to have got to know people interested in educational development from different schools at my university. I hope that the collaboration can continue, for example through shared research projects related to educational development."* (f7, December)

> *"Peer-support from other teachers has been important. We have heard how others do things and received comments and hints from others. This has given more certainty for my own work and teaching."(f6, December)*

> *"Pedagogical thinking has developed and become more diverse on the basis of group discussions."* (m5, December)

> *"[group discussions and collaborative inquiry] have affected my conception of good teaching so that the significance of teachers' collaborative dialogue has become stronger."(*m7, December)

> *"[group discussions and collaborative inquiry] have affected my conception of a good teacher enormously. I especially feel that this sharing of experiences and collaborating helps to piece together the field of teaching."* (m1, June)

> *"Working in group has been educating in many ways. On the one hand, the group provides a versatile knowledge base at the beginning of the course. Getting wider conceptions may, nevertheless, be the bigger advantage of the group. Through this, the group has made a significant input to my conception of good teaching. I simply could not have thought of all the perspectives that evolved in the group."* (m6, June)

The network theme included students' feelings of widening their network with teachers from other fields and also the feeling of them having a potentially more stable collegial network.

> *"A wider network between different schools [at the university] gives good support, for example, for discovering and evaluating different kinds of practices."* (f4, December)

4.3. Reflections on learning in relation to the predefined learning outcomes

To determine and evaluate how the predefined learning outcomes for the course were met, the reflection themes we found were compared to the initial learning outcomes (Figure 5). It seems that participants' reflections on their learning gains fell nicely into the themes of the predefined learning outcomes.

The first learning outcome, "the participants have the ability to work as active members in educational development group", seems to have been achieved both through collaborative inquiry on the course and through the participants' enhanced roles in their working environments. It seems that empowerment has given many of the participants the courage to take a more active role and also led to their being given more significant roles in, for example, educational development committees. The development of their skills and knowledge also gave the participants the courage and self-esteem to be active in educational development matters in their working environments. The group as a space for pedagogical dialogue and support was considered important for helping the participants to take a more active role in educational development both at the departmental level as well as in the network created by the course.

The achievement of the second learning outcome, "the participants should be able to discern the phenomena of teaching and learning based on research", seems also to be supported by the participants' reflections on their enhanced understanding of teaching and educational development. Moreover, the participants' experiences of the development of their skills as reflective practitioners and the development of their skills in research-based development support the achievement of this outcome.

The achievement of the third learning outcome, "the participants should become acquainted with different research methods and use one method in their own research", seems to be supported by the participants' reflection on the improvement of their skills in research-based development (the scholarship of

the participant has ability to work as an active member in educational development group	she/he is able to **discem the phenomena of teaching and learning based on research.**	she/he has become **acquainted with different research methods** and used one method in one's research project	the participant has **worked in multi-**disciplinary group and is able to recognize phenomenon of group processess	the participant is able to **evaluate** her/his action in a group work and is able support group work to reach its goal.
Empowerment				
–Stronger teacher and developer indentity	–Stronger teacher and developer indentity			
–Role as educational developer enhanced in the work community	–Role as educational developer enhanced in the work community			
Skills and knowledge				
–Expanded understanding of teaching, teachership and educational development	–Expanded understanding of teaching, teachership and educational development			
–Skills of acting as a reflective practitioner developed	–Skills of acting as a reflective practitioner developed		–Skills of acting as a reflective practitioner developed	–Skills of acting as a reflective practitioner developed
–Skills of research based development improved (scholarship of teaching)	–Skills of research based development improved (scholarship of teaching)	–Skills of research based development improved (scholarship of teaching)		
Group work				
–Important meaning of the group (providing support and space for pedagogical dialogue)		–Important meaning of the group (providing support and space for pedagogical dialogue)	–Important meaning of the group (providing support and space for pedagogical dialogue)	–Important meaning of the group (providing support and space for pedagogical dialogue)
–Participants reflected on and evaluated group project positively based on collaborative learning. But they did not recognise in their own group work the weakness or threds that they menitoned generally.	–Participants reflected on and evaluated group project positively based on collaborative learning. But they did not recognise in their own group work the weakness or threds that they menitoned generally.		–Participants reflected on and evaluated group project positively based on collaborative learning. But they did not recognise in their own group work the weakness or threds that they menitoned generally.	–Participants reflected on and evaluated group project positively based on collaborative learning. But they did not recognise in their own group work the weakness or threds that they menitoned generally.
Network				
–widen network with teachers from other fields			–widen network with teachers from other fields	
–Potentially more stable collegial network			–Potentially more stable collegial network	

Figure 5. Cross-tapping of the original learning outcomes and actual achieved learning outcomes.

teaching); the high significance given to the group in providing support and space for pedagogical dialogue can also be seen as evidence of this learning outcome. However, some participants also felt that they needed more support for this learning outcome. The reason research methods, especially qualitative research methods, were one of the prominent themes of the course was the clear need for them which arose on one of the contact days. Issues of methodology were also discussed during the supervising sessions. However, it seems that some of the participants needed more support from the supervisors in this sense.

> *"The last two weeks have shown how difficult it is to write scientific-like text from weak material (one cannot perhaps call the data we collected real science; I think that some others in my group think alike), which is from a different discipline."* (f1, December)

The achievement of the fourth learning outcome, "the participants are to have worked in a multi-disciplinary group and are able to recognize group processes", seems to be supported by the group working and networking themes and also by the reflective practitioner theme.

The achievement of the fifth learning outcome, "the participants should be able to evaluate their actions in a group project and be able to support the group to

reach its goals", seems to be supported by the themes of group work and also by the skills of the reflective practitioner. Many participants used what they had learned to reflect on their own behaviour in the group. Furthermore, experiences of flow were reported throughout the course. However, some felt that this group was somehow special in its motivation, and reflected on the significance of selecting students to this kind of course.

> *"This course turned out well, but the significance of student-selection still makes me think. On regular courses it is rare that students' motivation and commitment is at such high level as on this course."*(m2, December)

> *"I wonder what this course would have been like if everything had gone wrong? In [our group] we avoided conflicts knowingly /unconsciously and there was exemplary mutual encouragement. There was evidently a consensus that we could not have beaten the group's performance by working alone."*(m2, December)

5. Discussion and implications for practice

The analysis of the students' own free reflections shows that the learning outcomes were met and even exceeded in many ways. The students were clearly empowered as teachers and members of their own units. They felt that they had acquired a strong and important network of university teachers. Moreover, both groups' original observations and negotiated themes for the collaborative inquiries seemed to represent the broad field of teaching and learning. The inquiry-groups were able to produce scholarly articles on their themes. The groups had a different focus to their inquiries but, nevertheless, seemed to incorporate similar themes. One group approached their collaborative inquiry theme from a more or less inductive perspective, starting from the individual student, while the other group used more of what could be called a deductive approach, by focusing on holistic planning.

The learning outcome themes produced by the participants were not the same as the predefined learning outcomes, but they were highly related. Thus, it seems that this kind of long, process-oriented curriculum may also achieve predefined goals even when the content is not set. However, it is important that certain processes and supporting structures, as well as the learning environment, are well planned. Moreover, the way tutoring and supervision is planned and arranged is important. It seems that the participants had different kinds of expectations for tutoring in different phases of the various group processes. There were students who thought that more direct or concrete instructions would have been an insult to the group and an implication that they were insufficiently capable. On the other hand, there were students who would have liked to have received more direct instructions. It seems that extreme flexibility is required of the tutors and supervisors on this kind of course in balancing between active and passive tutoring and control and freedom (cf. Lakkala 2010).

According to the experiences of the participants, it seems that 20 ECTS credits, which equals approximately 540 hours of work, is a relatively large amount of study, if it needs to be completed alongside regular academic work and teaching. However, a few participants suggested that it would have been good if the course had lasted a few months longer. According to those students, it would have given more time for them to finish the collaborative inquiry in a better written form and possibly reflect more on the work of the other inquiry group.

Another issue that was raised by some of the students was that the summer holiday seemed too long a break in the middle of the course. One suggestion was that it would have been good if a more formal research deadline had been set for the end of May. However, it was also mentioned that the end of May was very busy for lecturers, with finishing courses and evaluating student work. A collaborative endeavour at the end of the spring semester, producing some sort of concrete collaborative work, would, according to some of the students, have helped the groups to continue their work at the beginning of the autumn semester. Individual inquiries seemed to be supported in this way by the task of preparing presentations for the national educational development conference in August. Nevertheless, the learning environment and the designed processes of this course seem to match the eight different team learning processes of sharing, co-construction, constructive conflict, team reflexivity, team activity, boundary crossing, storage and retrieval that have been suggested by Decuyper et al (2010) to be interrelated and essential for team learning.

A third issue which needs further reflection is the theme of research-based educational development. The participants on this course were researchers themselves, and some of their ideas about the collaborative inquiry and what it would produce seemed to resemble the idea of a robust research article (see one of the quotes above). The level of expectations for the research should probably have been elaborated upon in greater detail. The idea of the scholarship of teaching (e.g. Boyer 1990, Kreber and Cranton, 2000) includes the idea that teachers' own experiences and developmental practices should be made public in one form or another. In the early stages, this does not require the skills to write educational research articles or the skills to use educational research methods to their fullest; instead students are expected to start the journey of literally reflecting on their own teaching and using research in the analysis, reflection and development of their own teaching practices.

Furthermore, the procedures and processes of reflection and the reflective practitioner were unfamiliar to many of the participants. This was noticed during the early stages of the course, and some more explicit instructions were given to them. The challenge was, however, that the participants came from different scientific backgrounds. This meant that some students were more used to reflecting on their own actions as students than others. It seems that it is really important to consider the background of participants and pay more attention to supporting the process of their becoming reflective practitioners.

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Address:
    Laura Hirsto
    Faculty of Theology
    University of Helsinki
    P.O. Box 4 (Vuorikatu 3)
    00014 University of Helsinki
    Finland
Tel.: +358-9-191 21618, +358-50-3185265
E-mail: laura.hirsto@helsinki.fi

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