



SÄDE-PIRKKO NISSILÄ

Dynamic Dialogue in Learning and Teaching

Towards Transformation in
Vocational Teacher Education



ACADEMIC DISSERTATION

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P.O. Box 617
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Tel. +358 3 3551 6055
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BRIDGE

An old man going a lone highway,
Came in the evening, cold and gray,
To a chasm vast, both deep and wide.
The old man crossed in the twilight dim,
The swollen stream was as naught to him,
But he stopped when safe on the farther side,
And built a bridge to span the tide.
"Old man" said a fellow pilgrim near,
"You are wasting your strength in labor here,
Your journey will end with the closing day,
You never again will pass this way,
You've crossed the chasm deep and wide,
Why build you this bridge at eventide?"
The labourer lifted his old gray head,
"Good friend, in the path I have come." he said,
"There followeth after me today,
A youth whose feet must pass this way.
This chasm which has been naught to me,
To that young man may a pitfall be.
He, too must cross in the twilight dim,
Good friend, I am building this bridge for him."

- Will Allen Dromgoole

To my husband Keijo and our children
Kirsi, Juuso, Lasse, Laura, Mikko and Jussi

PREFACE

The fascinating question concerning the nature of pedagogical thinking, its definition, development and appearance in practice has interested me since the beginning of my teaching career. From that time originates also my interest in the new qualifications and learning as a transformation enhanced by my career as a teacher educator. As a principal lecturer in the School of Vocational Teacher Education in Oulu University of Applied Sciences I have had an opportunity to focus on the questions of teacher development strategies and thus continue and focus the research work started as a senior lecturer in the Department of Teacher Education in Oulu University.

For the support during my latest period of research I am thankful to the Director of the School of Vocational Teacher Education, Docent Pirkko Remes PhD who has given both personal support in my dealing with tricky questions and encouraged me and found both time and financial resources for my research. She has been available and willing to give her advice whenever needed. She has also devoted her precious time to checking and correcting my list of references.

I am more than grateful to Professor Pekka Ruohotie, my supervisor who supported me in my undertaking to investigate various dimensions of teacher thinking and development. He also created opportunities to concentrating on the analyses of the research material and writing the report by inviting me to work in the Research Centre for Vocational Education of Tampere University located in Hämeenlinna. I have been privileged to receive his valuable help, advice and comments. I appreciate his way of making insightful questions that focus on essential points of the study.

This research addresses the nature and development of teachership among the 2nd and 3rd career student teachers. These tasks were chosen, because they were thought to represent the path from expertise in one field towards a new self-image, the identity of a teacher and the expected qualities among adult learners. The human activities towards increasing awareness of the self and the others are challenging both as professional tasks and educational research. During this research work I have become more and more conscious of the delicate nature of teacher – student relationships as well as the expectations attached to the teachers in vocational education. I have become committed to continuing the study to unfold the nature of different dimensions connected to the quality of expertise and interrelationships in vocational education.

Over the course of many years, Professor Anneli Lauriala has given me valuable help. She provided me with stimulating ideas when planning the research on teacher thinking when I was still a lecturer in Oulu University. She has also

given valuable remarks at the end of this research process. Her advice and comments increased my awareness of the methodological aspects of this thesis.

Docent Seppo Saari deserves thanks for encouraging me to change my research project from Oulu University to Tampere University. Employed by the Ministry of Education in the Finnish Higher Education Evaluation Council he knew my work load and realized that I needed a distance from my daily chores to be able to concentrate on writing the analyses and the report. He also helped me to update the outline of the study.

My special thanks for their contribution go to Professor Leena Syrjälä and Docent Riitta Jyrhämä, the examiners of my dissertation. They provided me with valuable proposals on how to improve and clarify my work. Leena Syrjälä opened up new prospects of the use of narratives through reflection on their manifold manifestations in our professional and non-professional activities.

In my home institute, all the staff has unanimously given plenty of support to my work. I thank my colleagues, principal lecturers Kaija Kvist, Jarmo Salo, Pirjo-Liisa Lehtelä, Tuulikki Viitala and Kari Kiviniemi as well as Docent Pirkko Remes for participating in material collecting by giving the essays of their student teachers to me for investigation. I also give my thanks to the student teachers who have given permission to use their essays as research material. Lauri Kurkela, MSc has helped me with the computer problems. All the lecturers, Martti Pietilä, Raija Erkkilä, Anne Kuusela, Juhani Kettunen and Sirpa Perunka have shared my duties of supervising teaching practise during my stay in Hämeenlinna. The personnel of Study Affairs Office, Anne Koskela, Head of the Office, Pia Oikarinen, Sirpa Aalto, Pirkko Huttu, Financial Manager, as well as temporary research assistants have been available to help me in practical problems.

I also wish to thank Mr Maury Johnson, B.Ed., Lecturer, for proofreading my work and suggesting linguistic corrections. My thanks for assisting and advising me with computer programs and making up the text belong to my son, Lasse Nissilä M.Ed. I am very grateful for his contribution.

At the most critical stages of writing this thesis I had an opportunity to discuss with Hilikka Roisko, Lic.Ed., my research colleague in Hämeenlinna, I appreciate her ability to focus on essential points. At the beginning of my writing process I was privileged to receive valuable comments from Professor Paul Ilsley concerning both contents and language.

During my stay in Hämeenlinna I felt grateful for practical support to the staff of the department. Without forgetting anyone, I want especially to thank Ms Tarja Rantalainen, the project secretary who made my everyday life easier in many ways.

The management of the many roles of my life would have been impossible without the help of my family. I have received support and practical help from my husband, children and their spouses without causing me guilty conscience. My husband Keijo has been favourable to my ambitious goals and shared the

burden of the time required to complete the study. I want to give my special thanks for their patience and sympathy which has greatly motivated me.

Oulu, September 2006
Säde-Pirkko Nissilä

ABSTRACT

The study discussed in this doctoral dissertation illuminates the descriptive and reflective repertoires constructed by vocational 2nd or 3rd career teachers when writing of their experiences concerning different phases of their vocational teacher education. The phases include those aiming at the better self-understanding, understanding their self-concepts, and understanding the learners and the ways school communities work, as well as formulating personal learning conceptions, epistemologies and conceptions of human beings. The purpose of the phases was also to acquaint the student teachers with the everyday practices of school organizations during several encounters and finally during actual teaching practice. The focus of the study has been guided by an interest how adult 2nd or 3rd career student teachers experience the studies designed by one vocational teacher education unit. The investigation of the student teachers' learning paths to teachership and of their thinking skills as they appeared in their reflective reports were also of great interest. The topicality of the study is related to current changes in educational and working life factors as well as a desire to fight against teacher stress. The theoretical framework of this study approaches student teachers' experiences from the dimensions of awareness in personal, task, process and professional domains. In this study teachership is understood as involving both implicit and explicit elements and defined as a dynamic, social, personal and situational process by the regulation of which the teacher can influence on the learner's cognitive, affective and conative processes and learning outcomes.

Methodologically the study is based on the phenomenographic approach: the study material collected from the target group describes various aspects of growing towards vocational teachership described from the writers' point of view. The experiences cannot thus be compared to any 'reality outside them, but different persons' experiences and interpretations can be compared with each other. The students' reports have been analysed using a thematic content analysis, and the analysis unit has been one word or a cluster of words or sentence(s) carrying one meaning. The interpretation of analyses involves the investigation of described personal factors, functions, pedagogical content knowledge, collaboration, and dynamics of teacher students' actions. The main goal of the analyses is to clarify and model the way how the complexities of teaching work were understood during teacher education.

The action repertoire of teacher students was wide and theoretically well argued in the writings, but in practice the student teachers were not courageous enough to use them in the same wideness. Collaborative working methods,

various group work designs as well as inquiry-oriented approaches and discussions were most commonly used on the side of lecturing.

Vocational student teachers' higher-order thinking skills were considered outstanding according to what hierarchically varying levels appeared and which were best represented. Pedagogical thinking skills were regarded elaborated when used for reflection in abstract contexts, but their manifestation in practice was not on the same level. To develop their pedagogical thinking student teachers should gain experiences and reflect on them. It seems to be true that a teacher's pedagogical thinking becomes visible in her practices. To make it explicit in the context of teaching, too, teachers should practice collegial reflection on issues related to teaching and shared expertise which cover also aims, visions and values.

The challenges in the prospective vocational teacher's work will be continuing changes in working life, society and lifelong learning emphasizing on-the-job learning, acting in various networks and various learning environments, as well as changes in education and teacher roles. The teachers will have to cope with situations causing emotional stress. Self-knowledge, understanding oneself and the other lead to empathy, tactfulness and sound self-esteem, and are the challenges today and in the future.

How to make teaching into an attractive career for the present and future vocational (student) teachers? The study suggested that the spirit of invigoration, creativity, innovation and life-long, life-wide learning should be cherished in vocational teacher education institutions. Tutoring and mentoring programs should be designed to form a continuance in preservice, induction and inservice education. On the basis of this study, positive results of vocational teacher preservice education were experienced to be related to collaborative, discussing and supportive atmosphere as well as the student teachers' increasing awareness of themselves as persons and prospective professionals, awareness of their self-concepts and of their enhanced self-esteem. The theoretical model applied in this research study on teachers' descriptive and reflective repertoires of their growing towards teachership serves a good starting point to develop and support teacher development efforts in the future. It challenges the present modes of vocational teacher education to pay attention to the ability of educators, flexibility of institutions and the availability of media.

Keywords: phenomenography, pedagogical thinking, reflection, university of applied sciences, vocational teacher education

TIIVISTELMÄ

Tutkimuksessa tarkasteltiin aikuisten, 2. tai 3. ammattipätevyyttä hakevien ammatillisten opettajaopiskelijoiden kokemuksia opettajankoulutuksen aikana heidän itsensä kuvaamina ja refleктоimina. Koulutuksen eri vaiheissa pyrittiin lisäämään opettajaopiskelijoiden itseymmärrystä, minäkäsitystä, auttaa heitä ymmärtämään oppijaa ja kouluyhteisöjen toimintaa sekä saada heidät tietoisiksi ja määrittelemään oma oppimis-, tiedon ja ihmiskäsityksensä sekä niitä tukevat opetusmenetelmät. Koulutuksen tehtävänä oli myös tutustuttaa opettajaopiskelijat kouluyhteisöjen toimintaan sisältäpäin usean eri tutustumis- ja harjoitteluvaiheen aikana sekä lopulta suunnitella, toteuttaa ja arvioida joku kokonaisuus varsinaisessa opetusharjoittelussa. Yksi tutkimuksen painopistealueista oli saada tietoa siitä miten 2. tai 3. ammattipätevyyttä hakevat opettajaopiskelijat kokivat koulutuksen yhdessä ammatillisen opettajankoulutuksen yksikössä. Analyysin päätavoite oli löytää mahdollisimman erilaisia ymmärtämisen tasoja. Tietoa haluttiin saada myös siitä, millaisina näyttäytyivät opettajaopiskelijoiden kehittymispolut opettajuutta kohti kulkiessa ja millaisina heidän ajattelutaitonsa ilmenivät reflektiivisissä kirjoituksissa. Tutkimuksen ajankohtaisuus liittyy nykyisiin muutoksiin työelämässä ja koulutuksessa sekä haluun saada keinoja taisteluun opettajien kokemaa työstressiä vastaan. Tutkimuksen teoreettinen viitekehys rakentuu opettajaopiskelijoiden kokeman tietoisuuden ja taitojen lisääntymisen ympärille, kun sitä tutkitaan yksilö-, tehtävä-, prosessi- ja ammatillisen tietoisuuden ulottuvuuksien avulla. Tässä tutkimuksessa opettajuus ymmärretään implisiittisenä ja eksplisiittisenä kokemuksena sekä dynaamisena, sosiaalisena, persoonallisena ja tilannekohtaisena prosessina, jota säätelemällä opettaja voi vaikuttaa opiskelijan kognitiivisiin, affektiivisiin ja konatiivisiin prosesseihin ja oppimistuloksiin.

Tutkimuksen metodologinen valinta on fenomenografinen ote: tutkimusmateriaali on koottu kohdehenkilöiden laatimista kuvauksista, jotka kohdistuvat eri näkökohtiin matkalla kohti ammatillista opettajuutta esitettynä kirjoittajien omien kokemusten valossa ja jotka osoittavat miten erilaiset käsitystavat nousevat esille sekä ajallisella jatkumolla että samanaikaisesti. Kokemuksia ei voi vertailla todellisuuteen, mutta eri opettajaopiskelijoiden kuvailemia kokemuksia ja tulkintoja voi verrata keskenään. Opettajaopiskelijoiden kirjoitukset on analysoitu käyttämällä temaattista sisällönanalyysiä. Analyysiyksikkönä on ollut yhden ajatuksen esittävä sana, sanaryhmä tai lause/ lauseet. Analyysien tulkinnat kohdistuvat mm. kuvailtuihin ja refleктоituihin persoonatekijöihin, tietoisuuteen toiminnoista, pedagogiseen sisältötietoon, yhteistyöhön, ja opettajaopiskelijoiden ja toimintojen dynamiikkaan. Analyysien päätavoite on tutkia ja mallintaa tapaa, jolla opetustyön monimutkaiset toiminnot tulevat näkyviksi ja tiedostetuiksi

käytännössä ja mitä variaatioita on reflektoiduissa kokemuksissa opettajankoulutuksen aikana.

Opettajaopiskelijoiden toimintavalikoima opetustyössä oli laaja ja teoreettisesti hyvin perusteltu kuvausten tasolla, mutta heillä ei ollut rohkeutta soveltaa niitä käytännössä yhtä laajasti. Yhteistoiminnalliset menetelmät, erilaiset ryhmätyöt sekä tiedonhankintaan perustuvat menetelmät ja keskustelut olivat yleisimmin käytössä luentojen ohella.

Ammatillisten opettajaopiskelijoiden korkeamman ajattelun taidot osoittautuivat yllättävän hyväksi käytettyjen kriteerien mukaan arvioituina. Pedagogisen ajattelun taidot olivat hyvin kehittyneet, kun niitä käytettiin reflektiossa abstraktilla tasolla, mutta niiden ilmeneminen käytännössä ei ollut samalla tasolla. Kehittääkseen pedagogisen ajattelun taitoja käytännön valinnoissa ja päätöksenteossa opettajaopiskelijoiden tulisi saada opetuskokemuksia ja reflektoida niitä. Jotta pedagogisesta ajattelusta tulisi eksplisiittistä yhteisön tasollakin, opettajien tulisi harjoittaa kollegiaalista reflektiota opetukseen liittyvistä asioista ja samalla pohtia yhdessä tavoitteita, visioita ja arvoja.

Tulevaisuudessa ammatillisen opettajan työn haasteita ovat työelämän jatkuvat muutokset, jotka korostavat mm työssäoppimista ja toimimista erilaisissa verkoissa ja oppimisympäristöissä, samoin kuin opettamisen ja opettajan roolin muutokset. Opettajien tulee selvittää myös emotionaalista stressiä aiheuttavista tilanteista. Itsetuntemus, itseymmärrys ja toisen ymmärtäminen johtavat empatiaan, pedagogiseen hienotunteisuuteen ja ammatin eettisyyden ymmärtämiseen sekä kehittävät tervettä itsetuntoa ja tarjoavat siten haastetta nyt ja tulevaisuudessa.

Kuinka opettajan työstä voitaisiin tehdä houkutteleva nykyisille ja tuleville ammatillisille opettajaopiskelijoille? Tutkimus antoi aihetta ajatella, että luovuus, innostuneisuus, innovatiivisuus ja elinikäinen, elämänlaajuinen oppiminen olisivat asioita, joita tulisi vaalia ammatillisissa opettajakorkeakouluissa. Tutorointi ja mentorointi nähtiin tärkeinä opettajankoulutuksen sisältöinä sekä jatkuvuuden rakentaminen opettajankoulutuksen, induktiokoulutuksen ja täydennyskoulutuksen välille. Tutkimustulokset antoivat myös aihetta olettaa, että ammatillisen koulutuksen tulokset koettiin positiivina, kun ne olivat yhteydessä yhteisölliseen, keskustelemaan ja hyväksyvään ilmapiiriin samoin kuin opettajaopiskelijoiden lisääntyvään tietoisuuteen itsestään persoonina ja tulevana opetusalan ammattilaisina sekä heidän kokemaansa itsetunnon tukemiseen. Teoreettinen malli, joka tässä tutkimuksessa nousi opettajaopiskelijoiden kuvailevien ja refleктоivien kirjoitusten tutkimisesta, esittää opettajuuden tukipilareiksi laaja-alaista vuorovaikutusta, dialogia henkilöiden, asioiden ja kulttuurien välillä sekä tietoaineksen ja tunnetekijöiden tasapainoa. Se tarjoaa hyvän lähtökohdan kehittää ja tukea opettajan

kasvupyrkimyksiä myös jatkossa, sekä haastaa ammatilliset opettajankouluttajat ja koulutusinstituutit yhteistyöhön.

Avainsanat: ammatillinen opettajankoulutus, ammattikorkeakoulu, fenomenografia, pedagoginen ajattelu, reflektio

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1 INTRODUCTION

Teachers today work in the climate of dynamic change, which affects the conditions of their professional practice. Socio-cultural, moral, professional, political and physical changes create the pressure of the post-modern, characterized by precariousness, fragmentation and uncertainty, which works against teachers developing 'connectedness' with students and the worlds they inhabit. In more stable and predicatable times, it was possible for teachers to suppress emotions, thus retaining the focus on the cognitive. Today a central tenet in a climate of league tables and market-place competitiveness teaching is becoming an emotional labour which may be beyond the capacity of many professionals to deliver effectively. Emergent professionalism should therefore embrace rather than circumscribe, control or marginalize the emotional aspects of teaching.

Constant demands and disconnected reforms increase the emotional burden of teachers, and generate frustration rather than coherence. The claim that teachers should have explicit professional knowledge has become more and more commonplace. The rapid development of knowledge and new conceptions of learning also pose challenges and pressures for change on teaching, and on teachers' professional knowledge. It is in close connection with learners' involvement in their own learning. It is more vital than ever in an economic context where the rhetoric of lifelong learning is pervasive, but the learning often continues to be prescriptive, thus alienating learners rather than winning them to the cause of life-wide as well as lifelong learning.

The kind of knowledge possessed by teachers is often qualified as tacit, personal practical knowledge representing embodied means of knowing. To cope with the problems and challenges of their practice, in-service and pre-service teachers need professional pedagogical knowledge that is both up-to-date and transformative, and that has an impact not only on their action, but on their thinking and values as well. They need to become life-long learners who have a capacity and motivation to guide their own learning. For it they need metacognitive skills. Technical skills or, more or less, content knowledge by itself cannot necessarily accomplish much, although in policy circles 'knowing more' is often treated synonymously with 'teaching better'. (Lauriala 2004, McLaughlin 2002, 95.)

One of the popular topics in the research on teacher education is teacher processes, such as teacher knowledge and beliefs about teaching, their thinking

before, during and after lessons, the practical arguments underlying their action repertoire, and their (changing) conceptions of learning and teaching (Schön 1983; Shulman 1987; Kagan 1990; Calderhead 1996). This interest follows from the idea that it would be valuable to introduce cognitions in the research in order to prevent reducing the complexity of the process to effective teaching actions (Doyle 1990).

Psychological research shifted from behaviour oriented to cognition in the middle of the 1900's, and in the 1970's the research on teacher education developed in the same way. Since then, the researchers have used various terms and interpretations to describe the cognitive contents of the teaching profession. Despite much valuable research on teaching we are still far from comprehensive understanding of teachers and teaching.

Teacher thinking has been studied in Finland, e.g. by Kansanen (1993) and his work group (Kansanen, P., Tirri, K., Meri, M., Krokfors, L., Husa, J. & Jyrhämä, R. 2000). Kansanen explains how teachers move in their thinking from the descriptive to the normative (1993). He states that in addition to the values in the curriculum, the teacher's *personal conceptions* of education, teaching, learning, students etc. have a central meaning in the process. Education in general, and instruction process in particular, form the purposive nature of the phenomenon. The purpose gets its meaning through the curriculum, on one hand, and on the other hand this purpose becomes a part of the thinking of the participating persons. They have the intentions that they become part of the process with all of their own experiences acquired during their former lives. The critical question becomes how to integrate the purposes of education defined and specified in the curriculum as goals, aims, and objectives, into thinking of the teacher and of the students and thus become present in the process.

Another thing to be noticed is that purposes and intentions differ from each other. The purpose can be used in the context of curriculum where it is seen as a goal, aims and objectives. Intentions, on the other hand, are in the head of the teacher. The students have intentions, too. The intentions of the teacher, however, are defining the intentional situation during the instructional process. If successful, the process can be called purposive and the teacher's thinking pedagogical in the respect that he/she has internalized the aims and goals of the curriculum. (Kansanen 1993.)

Teachers can have many other kinds of intentions during their work besides bringing about learning. Researchers have resorted to a wide variety of different methods, ranging from looking into the thinking and planning that teachers do outside the classroom (Clark & Peterson 1986) through ethnographic studies to autobiographical accounts of how teachers understand their work (Connelly and Clandinin 1990).

Interaction between the teacher and students is either direct or indirect. Defining interaction with the extension from direct to indirect interaction makes it possible to create a general concept of the instructional process including all the activities of the teacher and the students. In instructional process, instead of being symmetrical, it is always the teacher who has the responsibility by legislation to steer the process and that is why there is power and authority in the teacher's actions. (Kansanen 1993.)

Kansanen and his work group as well as many other researchers have mainly dealt with class teacher education and the student teachers practising in classes 1-6 in the comprehensive school. Krokfors has presented the view of research based class teacher education (Krokfors 2005). The present study concentrates on the development of second and third career academic student teachers who prepare themselves for teaching young and grown-up students in vocational education. Except for the possible work experience of a few persons as uncertified teachers, most are novices in the teaching profession.

It seems that when confronted by new challenges, teachers strive to resolve them in ways that are congruent with the understandings they bring to the problem – a process that leads in turn to new horizons of understanding. Teaching is not the passing of a parcel of objective knowledge, but an attempt to share what you yourself find personally meaningful – an assertion that could be said to encapsulate the philosophy of constructivism. At the same time the idea includes the importance of teacher personalities, widening the philosophy to encompass also other aspects than constructing knowledge only. Therefore, studying vocational student teachers' learning experiences, connected with their autobiographies and self-analyses, personalities, emotions and cognitive structures, might be as challenging and important as curricula, planning and implementation.

1.1 The Aims of the Study

The start of a professional career is usually considered to be important for professional development. The majority of the research on that important phase in a teacher's life concern first career teachers and their way of constructing their professional identities and action. The purpose of the present study is to find out what kind of experiences and thoughts the second or third career student teachers gained on themselves as becoming teachers, and on the action they are involved in, during their teacher education and at the threshold of entering the teacher's work. Especially the study will investigate the student teachers' developmental arch of thinking and opinions on different issues during the course of studies. These conceptions are investigated in chronological order, from the onset of teacher education to the final teaching practice phase.

The material for closer study was collected from the writings of 50 prospective vocational teachers. Their presentations cover the central phases of the present vocational teacher education and their experiences are manifested in writing of the following themes:

- 1) getting acquainted with their learning styles,
- 2) recollecting their critical learning experiences,
- 3) explicating their personal learning conceptions with the help of literature,
- 4) observing students in vocational education institutions,
- 5) becoming acquainted with vocational educational contexts and school organisations, administration and action of teachers,
- 6) thinking of and describing their ideal teacher and student images,
- 7) reflecting on their present self-concepts and their goals and aims in developing as teacher personalities,
- 8) reporting of their final teaching practice phases, and
- 9) writing post-reflection essays as summaries of their experiences as student teachers

The student teachers were chosen for this study according to the following principles:

- 1) they represented different age groups, different disciplines and vocations, and were both men and women (Appendix 1),
- 2) they were supervised by all principal lecturers in the School of Vocational Teacher Education,
- 3) they represented the student groups chosen to vocational teacher education in successive years (1998 – 2003, Appendix 1), finishing their studies between 1999-2004,
- 4) their writings on all the themes 1 – 9 (listed above) had been saved and were at the disposal of the researcher.
- 5) they had given permission to use their essays as research material.

The advice before writing the reports/ essays/ reflections was loosely structured. The student teachers were given the main theme and questions to guide writing. Only the student observation task was more structured, since its purpose was also to teach how to collect empirical study material and deal with it. The student teachers formulated the contents of their essays freely, sometimes choosing a theme that was not in accordance with the suggested themes, the length ranging from 2 to 20 pages. Out of the 50 writings, 15 - 25 reports were chosen for closer analysis in chapters 4.1, 4.2, 4.3, 4.4, and 4.5. This choice was made separately for each chapter and on the following criteria:

- 1) the writer had written on the suggested theme, and
- 2) the text was sufficient for analysis, not too short, not too broad.

Covering the years 1998-2004, this study coincides with the time of rapid growth of the School of Vocational Teacher Education in Oulu. Built on the grounds of the earlier teacher education of nurses, vocational teacher education has existed in Oulu since 1996. Accordingly, this research describes the development and carrying out of the transformative vocational teacher education programs and tries to assess the results of the programs observed in student

teachers' thinking and action according to their own reported experiences. The aim has been to combine educational theory with practice, with biography and learning through classroom experiences. Further, collaboration and networking with agents in educational and working life contexts has been encouraged.

This is a phenomenographic study which *aims at* explaining the second or third career vocational *student teachers' experiences and conceptions* of learning a new profession, a new professional identity and a new way of thinking in pedagogical contexts in a transition phase of their professional lives. It aims at identifying crucial professional socialization and learning experiences during teacher education, as well as factors and processes related to the *development of beliefs and practices*, and *comparing them* with the international research evidence. The purpose is also to *formulate possible assertions* concerning the issues studied and *drive implications* for vocational teacher education programs intended for 2nd or 3rd career student teachers.

Further, the purpose of this study is to *understand teachers' cognitions and emotions* not only theoretically, but also based on the evidence that comes from practice, to find possibilities for improvements both in pre-service and in-service vocational teacher education. It would also be important to *find factors which enable teachers to work long careers*. Since the research group concerned is made up of professionals in other areas of knowledge than education only, it might be possible to find some new viewpoints for teachers' to survive in their psychically heavy work. This question is of ultimate significance today.

In short, the research questions at the outset of this study are:

- 1) What are the 2nd and 3rd career teacher students' experiences of their studies and themselves as prospective teachers during the vocational teacher education according to their written descriptions?
- 2) How do they describe their personal, task, process and professional conceptions during and at the closing phase of education?
- 3) How does the pedagogical thinking of the 2nd or 3rd career student teachers develop during the vocational teacher education (a longitudinal study)?
- 4) How does the prospective teachership manifest itself in the 2nd and 3rd career teacher students' narratives?
- 5) What kind of recommendations to the contents and arrangement of vocational teachers' pre-service and in-service education can be drawn on the basis of the results?

1.2 Vocational Teacher Education and the Challenges of Change: the Context of the Study

Living in the age of dynamic change and appreciating the feedback from student teachers and all interest groups, the School of Vocational Teacher Education in Oulu tends to develop its teacher education program continuously. Changes that have taken place yearly have been 1) those of titles, groupings and the organisation of studies, 2) the updating of the contents and 3) shifting the emphases. Although the basic model of studies has remained the same, the suggestions from experts, partners, network members and other interest groups have always been considered important and worth following.

Vocational teacher education is given in five Polytechnic institutions in Finland authorized by the Ministry of Education. The action is directed by the law (L356/03) and statute (A357/03). According to them the vocational teacher education program has to include 1) basic educational studies, 2) vocational pedagogical studies, 3) teaching practice, and 4) other studies. The scope of the program is 35 credit units/ 60 ECTS. A general entrance requirement is a higher academic degree or the highest vocational degree in the subject and a three-year work experience in the respective field. Up to this day there have been applicants twice or three times the yearly enrolment.

Multiform courses are designed to meet the needs of adult students who may choose full time studies on the fast track or flexible part-time studies along with their work. The student teachers design their individual learning plans themselves. The program consists of compulsory and optional studies. The former are educational science studies, some essential courses of vocational pedagogy and teaching practice. The optional courses are chosen from an open "tray". The duration of the studies varies from about 9 months on the fast track to 3 years. The school grants a teacher's diploma for working in vocational schools, polytechnics, adult education centres, liberal adult education units and upper secondary schools as well as in comprehensive schools. On the side of vocational teacher education programs, the general competence can also be attained in the University subject teacher education programs. The subject teacher's diploma entitles the person to teach the degree subject(s). The choice of the majoring subjects is narrower and the students younger in the latter teacher education programs. (Vocational Teacher Education in Oulu Polytechnic 2005.)

The School of Vocational Teacher Education in Oulu is the northernmost and youngest of Finland's five vocational teacher education institutes. It has expanded rapidly. Including in-service teacher education the number of current students is over 600. The school is profiled to meet the needs of northern Finland. It has been praised for its multidisciplinary studies. Engineers, pianists, theologians and economists all study the basic teaching skills together. It offers a good starting point for teachers' integration with each other even in the future. (Vocational Teacher Education in Oulu Polytechnic 2005.)

The strengths of the school are future awareness, versatile communication skills as well as understanding group dynamics and different learners. Current themes range from on-the-job learning and skills evaluation to ICT in teaching and learning. The purpose of the education is to increase the ability of the student teachers to guide and organize the learning and teaching of different students and groups as well as to develop, in co-operation with working life representatives, the future teachers' substance area skills. The purpose is also to remind the student teachers to keep their own vocational mastery up-to-date to make it serve teaching. (Vocational Teacher Education in Oulu Polytechnic 2005.)

Since teachers are also developers of society, they must endeavour to understand their actions in a broader social frame of reference. In addition to pedagogy and didactics, fields of knowledge such as sociology, social psychology and history will gain in significance in teachers' work. A key role in the process of education is played by teachers who are active in daily practices. Teachers should process the ability to analyse their own ideas of a teacher's work and the capacity to be aware of the grounds for the decisions they make. Reflective skills constitute a part of a teacher's professional growth, which will start during the teacher education. It is based on good theoretical competence, but also requires putting one's persona at stake and the ability to question one's own ideas and solutions as well as to evaluate them. (Vocational Teacher Education in Oulu Polytechnic 2005.)

The study programs are compiled and based on a dynamic view of vocational teacher education. They try to take challenges and meet the topical needs. The ontological, epistemological and learning conceptions behind the program are explained in the following figure:

PEDAGOGICAL STUDIES

CASTELL'S SCENARIO OF INFORMATION SOCIETY THEORIES ON LEARNING AND TEACHING

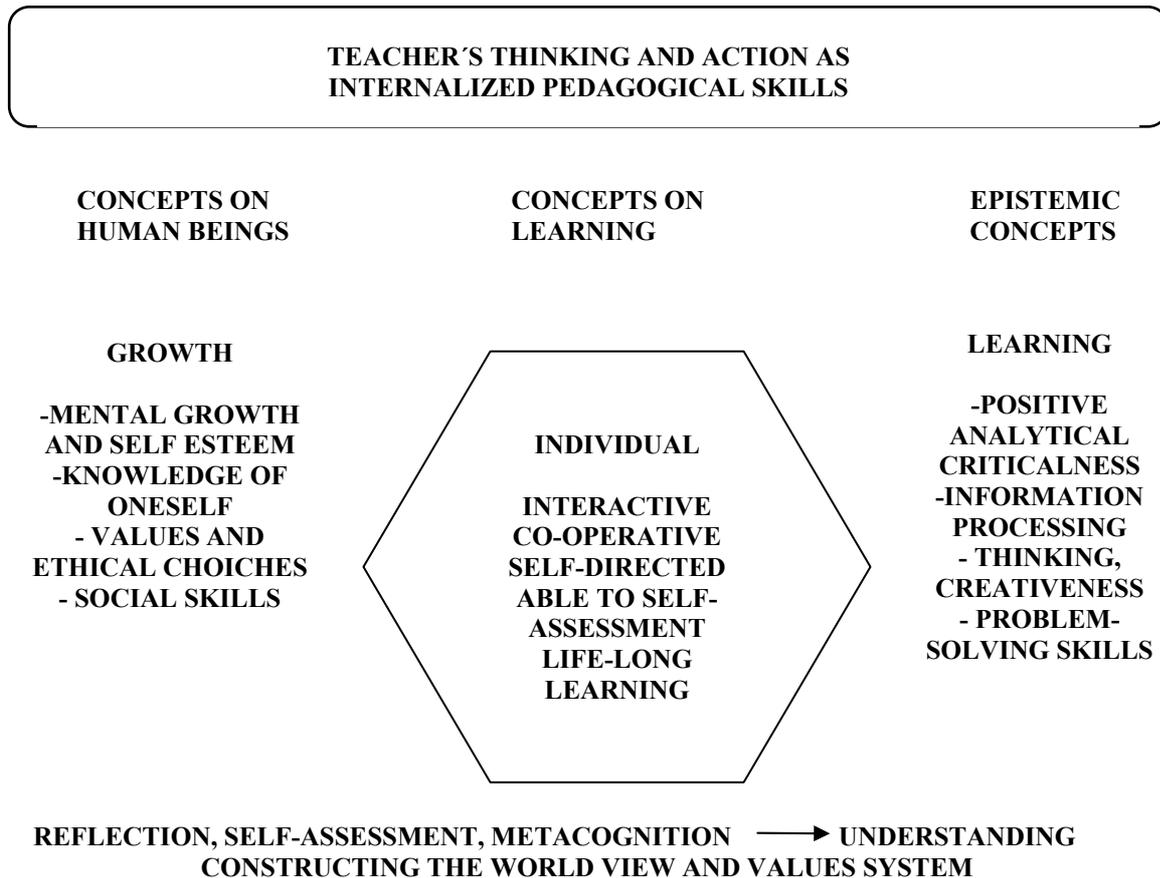


Figure 1. The conceptions of learning, epistemology and of human beings as the basic theoretical starting points of the teacher education program in the School of Vocational Teacher Education in Oulu. (Nissilä et al. 2001, cf. Mäkinen 1998).

Since the target group of the present study consists of adults with academic backgrounds and working experience, the path of second or third career student teachers to increasing awareness is expected to be different from that of the young students in class or subject teacher education. The vocational student teachers have acquired vocational or professional identities in their jobs. They have methodological knowledge of research in respective fields, and have composed master's and, in some cases, doctor's theses. Consequently, they are supposed to have critical thinking skills, e.g. autonomy, inquiry and problem solving competencies in their fields of expertise.

The actual teaching practise during 1999-2000 consisted of three phases. From 2001 on, the same contents are organised into two main phases by combining the phases 2 and 3 under one title. The total scope of teaching practice is 11 ECTS (6 credits in the older system). Each of the three phases is preceded by an introductory seminar and closed by a collective reflection seminar.

The last phase of teaching practice includes a planned sequence of supervised lessons (16-32 h). The core plan of the total sequence should be accepted beforehand by a tutor teacher in the school and the supervisor in the teacher education institution, the lesson plans are negotiated with the tutor teacher.

The network of practice schools consists of the Polytechnic units and vocational secondary institutes in Oulu area, governed by The Oulu Region Joint Authority for Vocational Training. The tutor teachers are chosen from among the competent position holders representing the discipline or competence areas of the student teachers. They are paid a modest fee for guiding planning, observing all the lesson and giving feedback and general support. The supervisor from the school of teacher education will audit the lessons a few hours and give feedback after them.

2 PROCESSES OF THINKING AND LEARNING

In general, thinking can mean “the act of practise of one that thinks”, “formulating in mind”, “a way of reasoning judgement”, “believing, supposing” or “occupying oneself mentally”. The present study is concerned with the development of pedagogical awareness and transformative thinking among vocational student teachers. Thinking at the teaching level refers to the possession of higher order thinking skills or critical thinking skills as they are often called. Becoming vocational teachers in Finland requires either academic or the highest exams in the field as the background knowledge. They include the exercise and practice of critical thinking skills both during the disciplinary studies and especially in composing master’s (licentiate’s and doctor’s) theses.

2.1 Educating Thinkers

The peak of professional practice in teaching is reached by only few. These professionals, whom we call experts, help set the standards for those who follow. To the novice, experts appear to have an unconscious, automatic quality in their work that enables them to attain high levels of performance with relative ease. Cognitive psychologists have investigated human performance acquired over many hours of learning and experience in various diverse domains. The data revealed differences in the competency levels resulting from the interaction of knowledge organization and information processing (Patel, Groen & Fredriksen 1986).

Since critical thinking skills are included in the programs of school education, teachers should ensure that learners are good critical thinkers, in school as in their everyday lives. So, it is important that student teachers are taught to teach thinking. While much is known about the cognitive skills of good thinking, there may be a paucity of information about the dispositional elements that support their use among pre-service teachers. It is argued that knowledge of pre-service teachers’ dispositions can assist teacher educators in preparing teachers capable of fostering critical thinking in their students.

What are the differences between the ways of thinking, acting, valuing and speaking that student teachers bring from home, school/ university and work place discourses and those that they must acquire in order to gain “membership”

of competent educational discourses? The answers to the question above will not be comprehensive in this context, instead they tend to be inspiring.

Firstly, understandings of knowledge as a 'commodity' are typical of what are termed 'reproductive' conceptions of learning. Such conceptions involve valuing learning, which reproduces or gives back what the lecturer has given out to the student. Constructive conceptions of learning involve applying what the teacher has said to existing knowledge so that the knowledge is transformed in some way. This transformation of personal knowledge then affects the way in which an individual perceives the world outside the lecture room.

Secondly, one difficulty in thinking ability concerns the negotiation of 'voices' in both spoken and written texts. An academic text contains many voices, for example that of the authorities, cited by the author and containing also the voice of the author that appears in relation to those other voices as a soloist backed by a choir. When the time comes for the student teachers to produce their own text, to sing their own song, they have to conduct also the voice of the lecturer who has done some of the conducting of his/her own. The difficulty in doing this often manifests itself in an inability to distinguish between the different voices. (Bakhtin 1981, Boughey, 1995.)

Thirdly, conceptions of writing flow out of conceptions of learning. Writing down and repeating what the teacher had told or what they had read in some authority was appreciated when most pre-service teachers were at school. Academic student teachers, luckily, have an understanding of writing as a process that generates new learning rather than one that reproduces someone else's old texts. What is intuitively perceived of writing is confirmed by research showing that the act of writing is indeed an act of generating or creating learning (Murray 1980, Emig 1983).

Writing is understood as a mode of communication, too. Much of writing produced by students can be regarded rather as spoken than written language. This difference can be seen in a lack of contextualization and a failure to make propositions follow on from each other in a linear fashion. The need to make the links explicit for the reader accounts for the claims of a writer to have a sense of audience. To be a good writer, the student (teacher) has to move from an oral to a literate mode of communication.

If we want teachers to be able to assist students in their learning, the teachers themselves need opportunities to have their own learning assisted by more experienced teachers and teacher educators (Duckworth 1987). The assistance can best occur in the context of practice where novices might have a chance to participate in 'authentic activity' (Brown & Tech 1989) with the support of others, more skilful practitioners. Practitioners who support novices in this endeavour act as teachers for the novices by helping them construct images of what skilful practice might look like (Schön 1987), to understand what it takes

for a teacher to be able to teach in such a way, and by making their knowledge and thinking visible to the learners (Heaton & Lampert 1993). The social interactions between the novices and their mentors are critical for the novices' learning, because it is through these interactions that the novices get access to the experienced teachers' thinking and ways of knowing.

2.1.1 Critical Thinking Skills

Robert Ennis defines critical thinking by saying that it means, roughly, reasonable and reflective thinking focused on deciding what to believe or do. In doing such thinking, one is helped by the employment of a set of critical thinking dispositions and abilities that can serve as a set of comprehensive goals. (Ennis 1996.)

A Delphi report (Facione 2004) understands critical thinking to be purposeful, self-regulatory judgement which results in interpretation, analysis, evaluation and interference, as well as explanation of the evidential, conceptual, methodological, criteriological or contextual considerations upon which that judgement is based. Furthermore, it affirms that every system is perfectly designed to get exactly the results you are experiencing. Insanity is doing the same thing over and over again while expecting a different outcome. (ibid.)

Consequently, critical thinking is essential as a tool in inquiry. It is a liberating force in education and a powerful resource in one's personal and civic life. Critical thinking is the skilled and active interpretation and evaluation of observations and communications, information and argumentation (Fischer & Scriven 1997). The ideal critical thinker is thus habitually inquisitive, well-informed, trustful of reason, open-minded, flexible, fair-minded in evaluation, honest in facing personal biases, prudent in making judgements, willing to reconsider, clear about issues, orderly in criteria, focused in inquiry, and persistent in seeking results which are as precise as the subject and the circumstances of inquiry permit. (Facione 2004, Dewey 1933.) In short, the description gives the characteristics of an ideal academic citizen.

While researches above see critical thinking as a direct positive force in building democratic society in all its levels and forms, which is one of the social tasks of school organisations as well, some studies show tendency towards developing critical attitudes in meeting different aspects of society and information. Taken in a positive way, they contribute to developing teacher thinking as well. Reynolds (1997) and Mingers (2000) emphasize the word 'critique' and list the qualities of a critical thinker in the following way:

The critique of rhetoric, being able to evaluate the validity or credibility of arguments and knowledge. To evaluate arguments is one of the most important elements in critical thinking (cf Moore 1989, Paul 1993).

The critique of tradition, being sceptical of conventional wisdom, 'common sense', long standing practices and traditional way of doing things;

The critique of authority, being sceptical of one dominant view and being open to a plurality of views;

The critique of knowledge, recognising that knowledge is never value free and is subjective and contextual by nature.

Being sceptical of tradition and authority, of knowledge and rhetoric is recommended to form a positive tool in teacher transformation. Educating good critical thinkers means working towards the ideal aims of education which are defined by laws and statutes, and by the documents of educational institutions. They suggest combining the developing of critical thinking skills with nurturing those dispositions which consistently yield useful insights and which are the basis of rational and democratic society.

According to Mezirow and his conception of critical thinking (1990, 363) the teacher is expected “to foster leadership and effective participation in others” to the extent that he/she becomes less necessary to the “self-directed learning process”. The control of the learning process should reside in the student so that successful pedagogy is measured in terms of the student’s increasing independence and self-motivation. Critical self-evaluation is also necessary in this process. Moreover, employers want more than people crammed full of knowledge. They want people who can think themselves, make connections and get on with others.

2.1.2 Pedagogical Thinking Skills

Several descriptions of the nature of teachers’ thinking and their knowledge and beliefs about teaching have been published. The term ‘knowledge’ does not refer to an objective, scientifically proven knowledge base, but to personal knowledge constructed by individual teachers. A distinction between objective and personal knowledge is that ‘formal knowledge’ is generated by educational researchers and ‘practical knowledge of teaching’ by teachers as a result of their experience in the classroom (Fenstermacher 1994). The practical knowledge has become the subject of scientific research: to reveal what teachers know and think.

The individual and unique character of teacher knowledge can be stressed by using the term ‘personal, practical knowledge’ which manifests itself without relation to a formal theory. The research methods in studying them are ‘narratives’ or ‘teachers’ stories’ (Connelly and Clandinin 1990; Elbaz (1981). The term ‘tacit knowledge’ is used to describe teacher knowledge as implicit and hard to articulate (Schön 1983; Carter 1990; Berliner 1992; Brown & McIntyre 1995). In addition, this knowledge is described as situated (Brown & Tech 1989). Schön (1983, 1987) originated the terms ‘reflection-in-action’ and ‘reflection-on-action’. The former indicates the knowledge of professionals as demonstrated in their actions, the latter referring to the process of reflecting on their actions in order to broaden their knowledge. Thus, Schön distinguished the knowledge and reflective thinking. Knowledge is a state and reflection is a

process by which knowledge can be acquired, adjusted and expanded. The notion of reflection has strongly influenced the education of prospective teachers and the professional development of already certified teachers.

In addition to the definitions given above, 'teachers' professional craft knowledge' can be valuable to observations of the lessons. It can refer to planning lessons, choices or possible changes during lessons, dealing with various teaching situations, reactions to students and so on in other words it guides day-to-day actions in teaching (Brown & McIntyre 1995).

Expert – novice studies have described the nature of experienced teachers' knowledge, although an experienced teacher should not be confused with an expert teacher. Research shows differences between novices and more experienced teachers in a specific domain, while knowledge of experts is specialized and domain specific, often tacit, and organised, stored in patterns, scenes and procedures (Carter 1990).

In the present study the terms 'practical knowledge' and 'personal knowledge' are used as a combination of all teachers' cognitions, such as declarative and procedural knowledge, and beliefs and values that influence their pre-active, interactive and post-active teaching activities. Practical knowledge is assumed to be personal, unique, often tacit, organised and intertwined with teaching actions. It is teachers' practical thinking in pedagogical contexts.

The nature of practical knowledge and especially its content has been defined by Shulman (1987). He categorizes teacher knowledge in the following way:

Content knowledge:

general pedagogical knowledge, with special reference to the principles and strategies of classroom management and organisation that appear to transcend subject matter;

Curriculum knowledge:

with particular grasp of the material and programs that serve as 'tools of the trade' for teachers;

Pedagogical content knowledge:

that special combination of content and pedagogy that is uniquely the province of teachers, their own special form of professional understanding, as well as knowledge of learners and their characteristics;

Knowledge of educational contexts: ranging from the workings of the group or classroom, the governance and financing of school districts, to the character of communities and cultures; and

Knowledge of educational ends, purposes, and values, and their philosophical and historical grounds (Shulman 1987, 8).

The research on teacher knowledge, beliefs and thinking processes not only contributes to a clearer understanding of teaching on a theoretical level, but can also be used for teacher education. The inquiry of explicated practical knowledge

can serve several functions for student teachers learning to teach and their understanding of the nature of teaching.

2.1.3 Transformative Thinking in Andragogy

The idea of transformative learning is that teachers should not “unload” new information on students in a blind hope that they will absorb it, but that they must instead “transform” the knowledge and skills they already bring with them into the classroom into something new. It promotes the idea that students have to be encouraged to sharpen their critical thinking skills in order to be able to transgress epistemological limitations. They should be helped to see boundaries, whether personal or social, as constructed and move beyond them. This movement both empowers and transforms learners.

Transformative learning is most likely to occur when students become personally engaged and perceive the subject matter to be directly relevant to their own lives. Understanding the diversity of learning styles and student experiences is a key to enhancing the engagement. Learning process is individual, content and context specific. It is crucial for teachers to cultivate learning partnerships with students. Teaching is igniting transformative learning: empowering students to take responsibility for their learning, inspiring courage to grow intellectually, cultivating curiosity, providing opportunities for developing relationships, clarifying values, uplifting the spirit and igniting action. Transformative learning is a reciprocally educative endeavour – informative and uplifting for teachers and students alike.

When speaking of adult learners, they need to know why they need to learn something, they need to learn experientially, they approach learning as problem solving. They learn best when the topic is of immediate value. They bring prior experiences and beliefs into the learning experience. (Merriam 2001.) In vocational teacher education both teachers and student teachers are adult learners. The future work of many student teachers, moreover, will be in andragogical settings.

The concept of transformative learning was introduced by Jack Mezirow (1978), and has been the topic of research and theory building in the field of adult education since then. Although Mezirow is the major developer of transformative learning theory (1997) making it into a comprehensive and complex description of how learners construe, validate and reformulate the meaning of their experience, other perspectives are emerging (Boyd, Myers & Gordon 1988; Taylor 1998; Talvio 2002, 160).

Mezirow’s theory exposes the centrality of experience, critical reflection, and rational discourse which are based on psychoanalytic and critical social theories. For learners to change the specific beliefs, attitudes and emotional reactions (= *meaning schemes*), means that they must engage in critical reflection on their

experiences, which in turn leads to a perspective transformation (Mezirow 1991,167). It is “the process of becoming critically aware of how and why our assumptions have come to constrain the way we perceive, understand, and feel about our world; changing the structures of habitual expectation to make possible a more inclusive, discriminating, and integrating perspective; and finally, making choices or otherwise acting upon these new understandings” (ibid.).

Perspective transformation explains how the meaning structures that adults have acquired over a lifetime become transformed. They are based on individuals’ cultural and contextual experiences. They influence on how they behave and interpret events. The meaning schemes may change by adding to or integrating ideas within an existing scheme, and it occurs through learning. Perspective transformation, however, occurs much less frequently. It results from a “disorienting dilemma” which is triggered by a life crisis or major life transition. Thus, according to Mezirow, a learning process is primarily rational, analytical and cognitive with an inherent logic. (Mezirow 1995, 50.)

Mezirow has been criticized for his emphasis upon *rationality* (Cranton 1994, Taylor 1989). Taylor states that critical reflection is granted too much importance in a perspective transformation (ibid. 33-4). A new view of transformative learning as an intuitive, creative process is beginning to emerge in the literature. It is based on analytical (or depth) psychology and is represented for instance by Boyd et al. (1988). They define transformation as a fundamental change in one’s personality involving the resolution of a personal dilemma and the expansion of consciousness resulting in greater personality integration (Boyd et al. 1988). The process of discernment is central and calls upon such *extra-rational* sources as symbols, images, and archetypes to assist in creating a personal vision or meaning of what it means to be human (Cranton 1994).

The process of discernment is composed of receptivity, recognition and grieving. The last is considered to be the most critical phase and takes place when an individual realizes that old patterns or perceiving are no longer relevant, and that he is to adopt new ways and finally integrate old and new patterns. While Mezirow sees the ego as playing a central role in the process of perspective transformation, Boyd et al. use a framework that moves beyond the ego and the emphasis on reason and logic. To sum up: transformative andragogy draws on the realm of interior experience, one constituent being the rational expressed through insights, judgements and decisions; the other being the extra-rational expressed through symbols, images and feelings (Boyd et al. 1988).

The two views seem contradictory, one emphasises rational approach, the other relies more on intuition and emotion. The differences can, however, be seen as a matter of emphasis. Both use rational processes and incorporate imagination as part of the process. Together they have humanism, emancipation, autonomy, critical reflection, equity, self-knowledge, participation, communication and discourse (Grabov 1997). These views suggest that no single

mode of transformative learning exists. Differences in learning contexts, learners and teachers affect the experiences.

When transformative learning is the goal of adult education, how can it best be fostered? Shall it be approached as a consciously rational process or as a more intuitive and imaginative process? Surely fostering learning environment should be considered. The teacher is to build trust and care and facilitate the development of sensitive relationship between learners so that shared experiences can occur. Learners should share the responsibility for constructing and creating their learning environment. Both the rational and affective, feelings and emotions in critical reflection and as means of reflection should be emphasized.

2.2 Conative Strategies

When trying to understand different ways of learning, it is important to differentiate between cognitive, affective and conative constructs. *Cognition* refers to processes of recognizing and acquiring information. Those processes include also perceiving, conceiving, judging and reasoning. *Affect* means the feeling response, or even the energy resulting from an emotional or general reaction. *Conation* refers to the mental processes of development, a kind of conscious effort to act or strive for something. Conative constructs include impulse, desire, volition and purposive striving. (Ruohotie 2000, 1.)

Conative constructs of learning include *motivational and volitional aspects*. Motivational aspects are made up of internal and external goal-orientations, fear of failure, need for achievement, self-esteem, belief in one's own abilities and possibilities, value of incentive and attribute interpretations. Volitional structures refer to persistence, will to learn, effort, mindfulness in learning, intrinsic regulation and evaluation processes together with control strategies as well as styles of processing information. (Ruohotie 2000, 3.)

Conative strategies are thus connected to a student's effort regulation, and directly also to motivational strategies. They refer to a student's *general self-management*, when it concerns effort and persistence. Consequently, effort management may be one of the most important learning strategies, in the connection point of motivation and cognition. If mastering the conative strategies the student knows when to increase effort or when the maximal effort is not required for the product. Further, he/she knows that increasing the effort does not always lead to success, but a change of strategy is needed. (Pintrich & McKeachie, 2000, 31.) Thus it seems that a key aspect in autonomous or *self-regulated learning* is the skill of coordinating appropriate strategies and levels of effort.

2.2.1 Self-Regulation

Self-regulation of learning usually refers to cognition and effort through cognitive, metacognitive and resource management strategies (Ruohotie 2000). Learners' conceptions of learning can be treated as *metacognitive knowledge* that influences task engagement. Secondary and, especially, tertiary students regard their learning mainly epistemological (Ruohotie 2000, Huttunen 1986). Their views show connection to the outcomes of their learning. If they have a conception of the necessity of fast progress, they are likely to adopt superficial learning strategies. If the tasks that need more cognitive processing are regarded as challenges, it refers to good performance. If the challenge is neglected and the tasks are approached superficially in a state of mind that leads to overconfidence, the learning outcomes are poor. Thus the learners' beliefs about learning can, in the worst case, cause misunderstanding and impede the construction of correct knowledge. There seems to be a close connection between learners' concepts of themselves, their approach to learning and their conception of their possibilities to regulate their learning.

Self-regulation thus describes the ways that people use to approach problems, apply strategies, monitor their performance, and interpret the outcomes of their efforts. It includes three central characteristics: *awareness of thinking, use of strategies and sustained motivation* which seem to be important from a teacher's point of view. Awareness of thinking is involved in becoming self-regulated. Bandura (1986) emphasized that self-regulation involves three interrelated processes: self-observation, self-evaluation and self-reaction. Understanding these processes and using them deliberately is the metacognitive part of self-regulated learning.

Use of strategies involves a person's repertoire of strategies for learning, studying, controlling emotions, pursuing goals, etc. One thing, again, is to know what a strategy is and another to use it, to modify it as task conditions change, and to be able to discuss it. There are three metacognitive aspects of strategies, often referred to as *declarative knowledge* (what a strategy is), *procedural knowledge* (how the strategy operates) and *conditional knowledge* (when and why a strategy should be applied) (Paris, Lipson & Wixson 1983). When learners are strategic, they consider options before choosing tactics to solve problems and then they invest effort in using the strategy. These choices embody self-regulation in learning, because they are the result of cognitive analyses of alternative routes to problem solving.

Sustained motivation is another aspect of self-regulation in learning, because learning requires effort and choices. Self-regulation involves motivational decision about the goal of an activity, the perceived difficulty and value of the task, the self-perceptions of the learner's ability to accomplish the task, and the potential benefit of success or liability to failure. (Paris & Newman 1990.) Awareness and reflection can lead to a variety of actions depending on the motivation of the learner. Self-regulated learning has been characterized as a

positive set of attitudes, strategies, and motivations for enhancing thoughtful engagement with tasks, but learners can also be self-directed to avoid learning or to minimize challenges. (ibid.) Avoiding failure instead of pursuing success attributes the performance of a learner to external or uncontrollable forces, using self-handicapping strategies, or setting inappropriate goals. Doing so the learners are undermining their own learning. These behaviours are self-regulated but may lead to diminished effort, task avoidance, and other actions that decrease engagement and learning. Self-regulation thus implies personalized cognition and motivation that exemplifies behaviours that may or may not be consistent with the agenda for learning (Hickey 1997). In brief, self-regulated learning recognizes that individuals have some control over their own learning, across contexts, across relationships, and across situations.

Self-regulation can be learnt in diverse ways. Explicit instructions are not the best way. Instead, directed reflection and metacognitive discussions can offer a key to identify the metacognitive understanding and regulating strategies that are desired and expected of learners, and then to engage them in thinking about their own learning periodically. Also modelling and activities that entail reflective analyses of learning can indirectly promote self-regulation. These endeavours should, though, focus on analyses of thinking and learning. By assessing, charting and discussing evidence of personal growth can self-regulation be promoted as well. The promotion is aided by record keeping and portfolios so that they are not just collections but promote reflections. Finally, self-regulation is woven into the narrative experiences and the identity of each individual. Learning is situated in domains of expertise and social interactions. (Lave & Wegner 1991.)

One of the central points is that learning is part of a person's narrative story, both as a cause and consequence of their identity. Self-regulation is also shaped by the identity of the group one belongs to or aspires to join. It hinges on participation through apprenticeship that gradually moves to full membership. (Lave & Wegner 1991.) Thus, how individuals choose to appraise and monitor their own behaviour is usually consistent with their preferred or desired identity. Gaining an autobiographical perspective on education and learning provides a narrative framework that deepens personal awareness of self-regulation. Further, participation in a reflective community enhances the frequency and depth of examination of one's self-regulation habits. (Brown & Campione 1990.)

2.2.2 Self-efficacy Beliefs

Perceived self-efficacy is defined as people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives. Self-efficacy beliefs determine how people feel, think, motivate themselves and behave. Such beliefs produce these diverse effects through four

major processes. They include cognitive, motivational, affective and selection processes. (Bandura 1994.)

People with high assurance in their capabilities approach difficult tasks as challenges rather than threats. They heighten and sustain their efforts in the face of failure. They quickly recover their sense of efficacy after failures or setbacks. They attribute failure to insufficient effort or deficient knowledge and skills which are acquirable. This kind of efficacious outlook produces personal accomplishments, reduces stress and lowers vulnerability to depression. (Bandura 1994.)

In contrast, people who doubt their capabilities avoid difficult tasks which they consider personal threats. They have low aspirations and weak commitment to the goals they choose to pursue. When facing with difficult tasks they dwell on their personal deficiencies and all kinds of adverse outcomes rather than concentrate on how to perform successfully. They give up quickly in difficulties. Because they view insufficient performance as deficient aptitude, it does not require much failure for them to lose faith in their capabilities. They become easily victims to stress and depression. (Bandura 1994.)

People's efficacy-beliefs can be developed through mastery experiences or experiencing the overcoming of obstacles through perseverant effort, through vicarious experiences provided by social models, through social persuasion by strengthening people's beliefs, and by reducing people's stress reactions and altering their negative emotional interpretations of their physical states. (Bandura 1994.)

It is not the sheer intensity of emotional and physical reactions that is important, but rather how they are perceived and interpreted. People with high sense of efficacy view their state of affective arousal as an energizing facilitator of performance, while the ones who are beset by self-doubts regard their arousal as debilitating.

Self-efficacy beliefs effect on cognitive processes in a variety of forms. Human behaviour is purposive in general and is thus regulated by forethought embodying valued goals and goal-setting. It is influenced by self-appraisal of capabilities. The stronger the perceived self-efficacy, the firmer is individual commitment to the set goals. With high sense of efficacy people visualize success scenarios to support performance. The ones doubting their efficacy visualize failure scenarios and lose their energy in fighting self-doubt. In enabling people to predict events and develop ways to control them, effective cognitive processing of information containing uncertainties is required. It requires a strong sense of efficacy to remain task oriented in the face of pressing situational demands, failures and setbacks. The ones with self-doubts become easily erratic in their analytic thinking, lower their aspirations and quality of performance. Those who maintain a resilient sense of efficacy take challenging

goals and use good analytic thinking which pays off in performance accomplishments. (Bandura 1994.)

In addition to cognitive processes described above, self-efficacy plays an important role in motivational processes. Motivation is mostly cognition-generated. People form beliefs of what they have to do and what they can do. They anticipate likely outcomes of prospective actions. Thus cognitive motivators include causal attributions, outcome expectancies and cognized goals. Self-efficacy beliefs operate in each of these types of cognitive motivation.

Affective processes influence mainly through anxiety arousal and perceived coping self-efficacy. People who believe that they can exercise control over threats do not conjure up disturbing thought patterns. Those who believe they cannot manage threats experience high anxiety arousal. Through inefficacious thinking they distress themselves and impair their level of functioning, Perceived coping self-efficacy regulates avoidance behaviour as well as anxiety arousal. The stronger the sense of self-efficacy is the bolder people are in taking on threatening activities. (Bandura 1994.)

Social cognitive theory prescribes mastery experiences as the principal means of personality change. Guided mastery is a powerful vehicle for a sense of coping efficacy in people with avoidance behaviour and anxiety arousal. Both perceived coping self-efficacy and thought control efficacy operate jointly to reduce anxiety and avoidant behaviour. Moreover, any factor that influences choice behaviour can profoundly affect the direction of personal development. Career choice is only one example of the power of self-efficacy beliefs to affect the course of life-paths. The higher the level of people's perceived self-efficacy, the wider the range of career options, the greater people's interest in them, and the better they prepare themselves educationally for the pursuits they choose and the greater their success. (Bandura 1994.)

2.2.3 Metacognitive Skills

In recent theories of learning the learner's active role is expressed in different terms. We speak of autonomous learning and learner autonomy, of self-directed learning, self-regulated learning or independent learning. We also speak of problem based learning and active learning. They are not only examples and a matter of cognitive skills and processes, but have also an emotional and social nature. In short, they require metacognitive skills to be fully functional.

Metacognition refers to higher order thinking skills which involve active control over the cognitive processes engaged in learning. Activities such as planning how to approach a given learning task, monitoring comprehension, and evaluating progress toward the completion of a task are metacognitive in nature. Because metacognition plays a critical role in successful learning, it is important

to study metacognitive activity and development to determine how learners can be taught to better apply their cognitive resources through metacognitive control.

The term is not simply defined only as “thinking about thinking”. The concept has raised much debate over its exact interpretation. One reason for this confusion is the fact that there are several terms currently used to describe the same basic phenomenon (e.g. self-regulation, executive control), or an aspect of that phenomenon (e.g. meta-memory), and these terms are often used interchangeably in literature. While there are some distinctions between definitions (e.g. Borkowski, Carr & Pressley 1987), all emphasize the role of executive processes in the overseeing and regulation of cognitive processes.

The term metacognition is most often associated with John Flavell (1979). According to Flavell (1979, 1987), metacognition consists both of metacognitive knowledge and metacognitive skills (experiences or regulation). Metacognitive knowledge refers to acquired knowledge about cognitive processes, knowledge that can be used to control cognitive processes. Flavell further divides metacognitive knowledge into three categories: knowledge of person variables, task variables and strategy variables.

Knowledge of person variables refers to general knowledge about how human beings learn and process information, as well as individual knowledge of one’s own learning processes. Knowledge of task variables include knowledge about the nature of the task as well as the type of processing demands that it will place upon the individual learner. Knowledge about strategy variables include knowledge about both cognitive and metacognitive strategies, as well as conditional knowledge about when and where it is appropriate to use such strategies. In short, it is the knowledge of an individual’s own schemas, strategies and processes, and the conscious awareness of one’s learning abilities. Awareness of the difficulty of various tasks and their demands are also included in the metacognitive knowledge. Further, awareness of one’s abilities is closely related to motivational components, such as self-efficacy, control beliefs and expectancy of success. Awareness of learning tasks is linked to task value and goal orientation. (Ruohotie 2000.)

Metacognitive experiences involve the use of metacognitive strategies or metacognitive regulation (Brown 1987). Metacognitive strategies are sequential processes that one uses to control cognitive activities, and to ensure that a cognitive goal (e.g. understanding a learning task) has been met. These processes help to regulate and oversee learning, and consist of planning and monitoring cognitive activities, as well as checking the outcomes of those activities.

Most definitions of metacognition include both knowledge and strategy components. Still, there are problems associated with using such definitions. One major issue involves separating what is cognitive from what is metacognitive. Flavell acknowledges that metacognitive knowledge may not be different from

cognitive knowledge (1979). The distinction lies in how the information is used. Pintrich and McKeachie (2000) have stated that metacognitive strategies involve the control and regulation aspect of metacognition more than the knowledge aspect (Ruohotie 2000).

Cognitive strategies are used to help an individual achieve a particular goal, while metacognitive strategies are used to ensure that the goal has been reached. Metacognitive experiences usually precede or follow the cognitive activity. They often occur when cognitions fail, such as recognition that one did not understand what one just read. Such an impasse is believed to activate metacognitive processes as the learner attempts to rectify the situation (Roberts & Erdos 1993).

Metacognitive and cognitive strategies may overlap in that the same strategy can be regarded as either a cognitive or a metacognitive strategy depending on what the purpose for using that strategy may be. The learner can use a self-questioning strategy as a means of obtaining knowledge (cognitive), or as a way of monitoring what he has studied (metacognitive). Because cognitive and metacognitive strategies are closely intertwined and dependent upon each other, any attempt to examine one without acknowledging the other would not provide an adequate picture.

Knowledge is regarded as metacognitive if it is actively used in a strategic manner to ensure that a goal will be and is met. For example the learner may use the knowledge in planning how to approach a learning task. Simply possessing knowledge about one's cognitive strengths or weaknesses, the nature of the task and the most useful ways of approaching it without actively utilizing this information to oversee learning is not metacognitive. Good learners are supposed to engage in more planning and more metacognitive activities than poor learners (Ruohotie 2000).

Metacognition or the ability to control one's cognitive processes (self-regulation) has been linked to intelligence (Brown 1987, Sternberg 1986). These executive processes are sometimes referred to as "metacomponents" in the triarchic theory of intelligence (Sternberg 1986). Metacomponents are executive processes that control other cognitive components as well as receive feedback from these components. They are responsible for "figuring out how to do a particular task or set of tasks, and then making sure that the task or set of tasks are done correctly" (ibid, 24). These executive processes involve planning, evaluating and monitoring problem-solving activities. The ability to appropriately allocate cognitive resources, such as deciding how and when a given task should be accomplished is central to intelligence, while the ability to apply previous knowledge to new situations, thus directing the learning process, problem solution, decision making and evaluation of one's learning, is included in cognitive strategies. The application of acquired knowledge often requires critical thinking. It is, to a certain extent, domain or discipline specific. In psychology and in critical analysis of research methodology and theory, the

nature of critical thinking is, however, somewhat differently defined (Ruohotie 2000.)

2.3 Learning Conceptions as the Framework of Teaching and Learning Processes

The basic conception of learning in this study suggests both that learning always consists of two integrated processes of interaction and internalization, respectively; and that learning simultaneously comprises a cognitive, an emotional and psychodynamic, and a social and societal dimension. In other words that learning and every single learning process is stretched out between three angles or approaches which are typically represented by many researchers (e.g. Piaget, Freud and Marx):

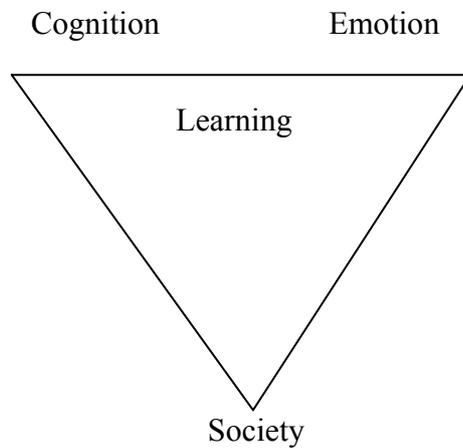


Figure 2. The field of learning.

All learning has a content of skill or measuring. The acquisition of this content is a cognitive process, primarily. This is the dimension that traditional learning psychology has concentrated on (Piaget via Flavell 1963, Vygotsky 1982).

All learning is simultaneously an emotional process, or a psychodynamic process, i.e. a process involving psychological energy, transmitted by feelings, emotions, attitudes and motivations which both mobilise and, at the same time, are conditions that may be influenced and developed through learning. A very broad and general basis in this dimension is the psychoanalytical tradition (Freud 1959).

Learning is also a social process, taking place in the interaction between the individual and its surroundings, and thus it is also a process dependent on historical and societal conditions. It is therefore important to realise that this dimension has two connected levels: a directly or indirectly social, interpersonal

level of interaction, and an underlying societal level, influencing the character of the interaction as well as the contributions of individuals who are developed in a societal context. On the interactional level the social dimension is to a certain extent taken up inside group and social psychology, and on the underlying societal level in socialization theory.

Primarily figure 2 shows the three-pole field in which the learning is situated and inside which it may be understood and analysed from different positions that to a different extent accentuate or tone down the learning dimensions.

All three dimensions are always integrated parts of the learning process and in practice do not exist as separate functions, although there may be a need to separate them analytically in order to obtain a more differentiated picture. Accordingly, such separation must only be carried out with the underlying understanding that the dimensions are always integrated in reality.

Both the cognitive and the emotional dimensions and the interplay between them are decisively dependent on the function of the social dimension. In addition, there are always societal conditions influencing the learning situation and process. More directly, it can be the consciousness of grading or examination, and in general, the fact that the life situation and the societal conditions of each learner may constitute a more or less rejecting or indifferent attitude. Conversely, it may exert a positive influence on the situation and the learning, if, e.g. the qualification demands are experienced as important and relevant. Thus, the social and societal situations constitute the external conditions of learning.

2.3.1 Behaviouristic Learning Conception

Behaviourism is a learning theory that concentrates only on observable behaviours and disregards mental actions. Behaviourists characterize learning as nothing more than the acquisition of new behaviour. They acknowledge the intrinsic behaviour of humans, but nevertheless believe that the most important determining factors of our behaviour are learned. They view learning as passive activity and consider knowledge as given or absolute. (Marton & Booth 1997.)

Classical conditioning and operant conditioning are the processes by which behaviours are considered to be learned. Classical conditioning occurs when a natural reflex responds to a stimulus. Predictably, a certain stimulus will produce a specific response. On the other hand, operant conditioning takes place when a response to a stimulus is reinforced. By following a response to a stimulus with reward or reinforcement, the response becomes more likely to be consistently repeated.

A well-known behaviourist, B.F. Skinner contended that the goal of behaviourism should be to discover and segregate the environmental factors that regulate behaviour. Further, he stressed that it is necessary to understand the conditions surrounding the occurrence of a specific behaviour so that the behaviour can be predicted and controlled. (Skinner 1938; Miettinen .) However, in recent years, the simplistic nature of the theory of behaviourism has received much criticism.

Behaviourism critics point out that it is an incomplete theory because it does not address mental processes. In addition, it does not account for kinds of learning that do not utilize a reinforcement system. Research has shown that learners modify reinforced behaviours for new information.

Behaviourism has contributed much to our understanding of rote learning. Despite its inadequacies, instruction practices based on the premises of behaviourism are still utilized in schools. In vocational education area behaviourism appears as an element in constructivist contexts. There are certainly applications in which its limited use as immersed into other, more developed practices is possible.

2.3.2 Experiential Learning Conception

As a continuation of Piaget's learning theory, David Kolb developed his model of learning known as experiential learning (Kolb 1984) tending to model the process by which experience is transformed into knowledge. Although Kolb is mainly concerned with the cognitive dimension of learning, his learning cycle constitutes a systematization of the learning process which could in some contexts be a valid analytical blueprint, but which also involves a vigorous rationalization of the diversity of reality, in the following manner:

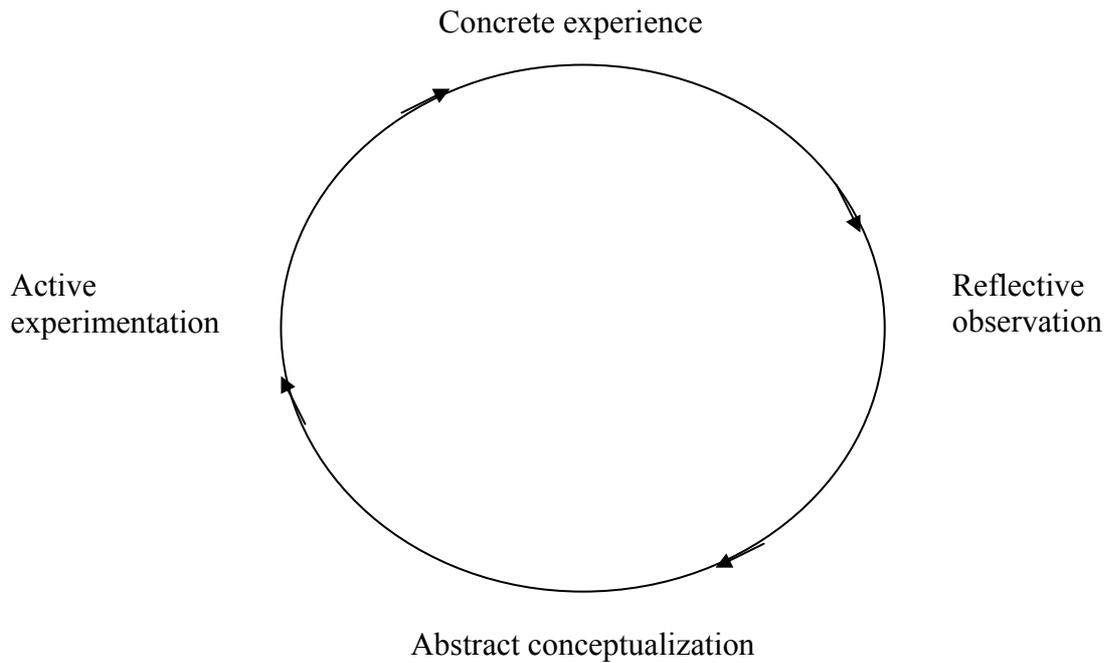


Figure 3. Kolb's experiential learning cycle (Kolb 1984, 33).

Neither learning nor research takes place, in the real world, according to that kind of logical systematism. In both cases it is more that one starts off with what one knows and regards as important or striking, whether it is a question of experiences, observations, knowledge, understanding, problems, and from there one attempts to make progress in a combined acquisition and clarification process. E.g. Schön (1983) has documented how reflective practitioners cope with different situations by drawing on and combining in parallel the relevant elements that they have at their disposal. Also in Mezirow's research (1991) there is criticism of this over-systematic element in Kolb's basic theory. Notwithstanding the critique, the model offers an easily understandable starting point to the student teachers who meet the problems of learning first time on theoretical level. Kolb's model can be widened and deepened during the process of education.

The next step in developing Kolb's theory there is the conclusion of two dimensions present in all learning: "prehension" (i.e. apprehension, comprehension) and "transformation". The most innovative aspect of Kolb's theory does not, however, lie in his learning dimensions as such, but in his further analysis of them. He found that each of the dimensions stretch between two dialectically opposed adaptive orientations that together are identical to the four stages in the learning cycle, in the following way:

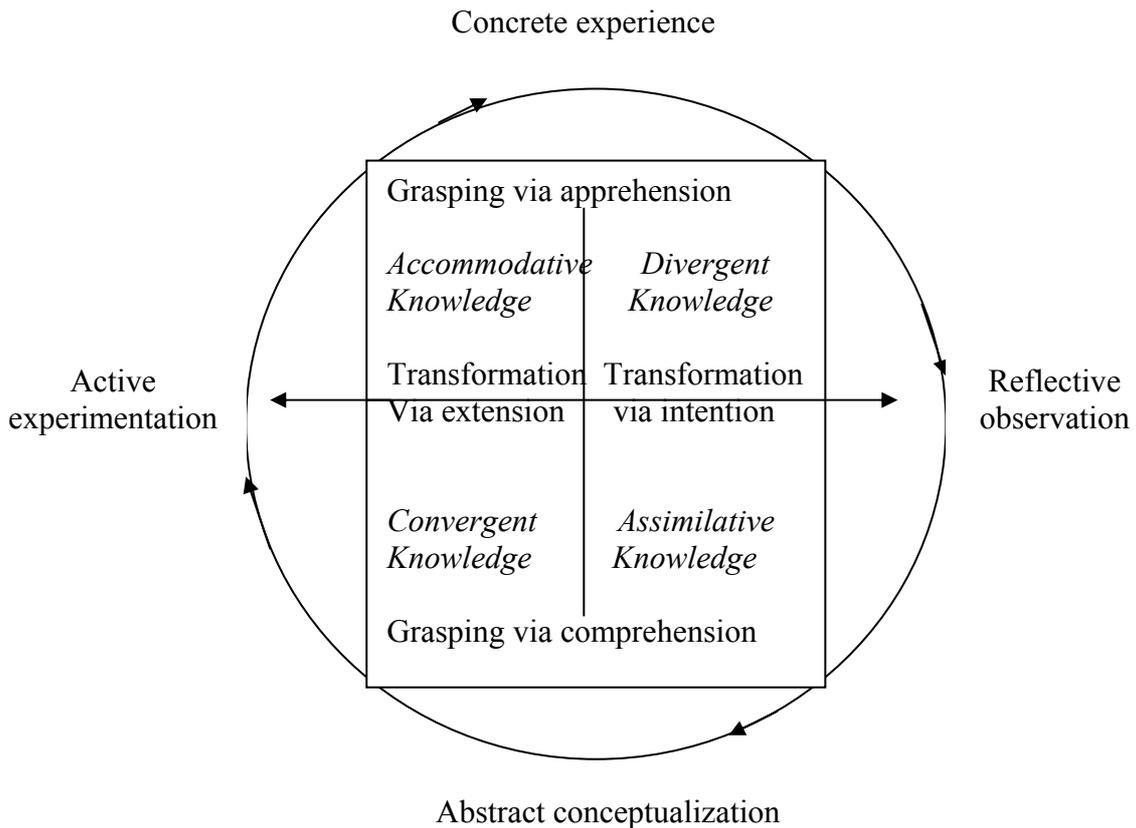


Figure 4. Kolb's learning model (Kolb 1984).

According to the figure above, the structural basis of the learning process lies in the interaction between these four orientations. The model also indicates the typical conditions for each of the forms of knowledge. Thus:

- assimilative knowledge develops from comprehension and intention,
- convergent knowledge develops from comprehension and extension,
- accommodative knowledge develops from apprehension and extension, and
- divergent knowledge develops from apprehension and intention.

When compared to Piaget's conceptions, it is problematic that the four forms of knowledge in the model above are of equal standing. It is still possible to conceive of assimilation and accommodation as the two important types of processes and then, on the basis of Kolb's work, make the important addition that both these types of process can have a nature that to some extent favours the direction of the convergent or divergent. Some researchers even show that subject-oriented teaching predominantly provides for convergent knowledge, while problem-oriented activities are more likely to encourage divergent knowledge (Illeris 1995).

Experiential learning defined by Dewey (1933) has a conception of experience in accordance with its everyday meaning. Despite many references to

interaction, however, Dewey's concept of experience has often been criticized as individualistic and lacking a societal dimension. Although Dewey was aware that individual experience is always embedded in a social context, the nature of these societal factors appeared in his analysis only in the form of criticism of traditional pedagogy (1933). Later research of learning by experience has drawn the attention to the totality of the concept of experience in relation to learning. It comprises all aspects of learning in principle. Certain qualitative criteria must still be fulfilled:

- Firstly, learning must be of considerable subjective significance with regard to the cognitive as well as the emotional and the social-societal learning dimensions;
- Secondly, learning must be a part of a coherent process – there must be a continuity;
- Thirdly, the interaction process between the individual and the social and / or material surrounding must be of such a nature that the individual can be said to be a subject in the situation;
- Fourthly, the formation of experience is always socially mediated. It does not occur in individual isolation, but of necessity requires a social context;
- Finally, the influences from the environment that the interaction is concerned must exemplify relevant societal material or structures.

Thus experiential learning typically concerns the important subjectively perceived problems of the participants, which are worked through in a continuing experiential process on the basis of previously established patterns of experience and governed by a forward-pointing action perspective. Project work is a typical pedagogical work pattern that prepares the way for this kind of formation of experience.

2.3.3 Learning by Expanding

Yrjö Engeström's research works are from the sphere of the cultural historical tradition, but in the connection of the theory of learning by expanding (Engeström 1987) he takes a step ahead by connecting several concepts into one: Bateson's learning theory with five levels of learning in a hierarchical order (Bateson 1972) and the concept of double bind. From Vygotsky (1982) Engeström adopted the concept of the zone of proximal development, provided that it should not lead to an authoritarian form of teaching. He rejects stressing the past development of an individual, but understands that what is important are creative processes. This is also an indirect connection to a constructivist learning concept.

In the cultural historical tradition, activity is defined as goal-directed activity. Though it was hardly Vygotsky's intention, it led to a form of behaviour in which it is the teacher or the adults that control the process of learning to a very

great extent. In school practices it lead to the so called “structured learning”. (ibid.) This has been of a less interest to Engeström.

Engeström approaches learning in the following way: if learning in the zone of proximal development is understood as innovative, creative processes, it must be that which is Bateson’s level III, in other words: these two concepts are nearly the one and same thing. The concept of the double bind is introduced by Engeström in a slightly different sense from that of the original in Bateson’s article, here stressing the potential for a positive solution of a problem situation instead of flight or getting a mental illness. On the basis of Vygotsky’s and Bateson’s theories he finds that humans have the potential for a particular kind of learning through expansion that is characterized by transcendence of the constituent conditions of earlier learning.

Engeström feels able to distinguish between two different types of learning III. They are “development as personal crises and explosions, and development as tacit, invisible contributions” (1987, 161). He also stresses the significance of the social or collaborative dimension in such learning processes.

2.3.4 Meta-learning and Transformative Learning

Meta-learning can occur whenever there is a significant conflict of interests and there is the potential for a transcendent adaptation. The learning process may take the form of coming through a crisis via reflection and meta-learning. Meta-learning can also occur as a shorter and more intense process, even like an explosion. Kupferberg (1996) has noted that project work can form a pedagogical framework that contains possibilities of this kind. There must always be challenges that the learner feels obliged to deal with, and there must be the potential for and input to a relevant processing of such challenges if learning of this kind is to take place.

Transformative learning was developed by Jack Mezirow (1990, 1991), an adult educator in the United States. It concerns changes in the basic perceptions of context and meaning complexes that are deeply incorporated from childhood, and which are often unconsciously the basis for the individual’s opinion and forms of comprehension – that which Mezirow defines as meaning schemes and meaning perspectives. It also concerns altered action patterns as an extension of this.

Typical examples that Mezirow gives include the re-evaluation of identity, self-image, values and opinions, as undertaken e.g. by many females in the connection of gender debates and by Paulo Freire (1970). Although the examples illustrate profound learning processes, at the same time there is a gap between the immediate comprehension of cognitive learning as acquisition of knowledge and skills and the thorough processes that can also be involved in cognitive learning.

Structurally, transformative learning involves the simultaneous restructuring of several cognitive as well as emotional schemes. Functionally, it changes the learner's self and thereby provides the learner with qualitatively new understandings and patterns of action.

2.3.5 Cognitive Structures and Affective Patterns

The influence of affectivity on the cognitive is one overall impression, perceived as an overall function, characterized by converting a differentiated influence from the surroundings. In learning, one can distinguish between the cognitive or epistemological aspect, which is concerned with the contents of learning, and the emotional, affective, motivational and psychodynamic aspects, which are concerned with the dynamics of learning. Through the cognitive processes, knowledge structures and schemes are developed, while affective experience develops emotional patterns of a relatively stable nature. Both the cognitive and the emotional patterns change and develop through an interaction of assimilative and accommodative processes. In assimilation (addition, consolidation) the emotional aspect typically functions unconsciously, while in accommodation (transcendence, restructuring) it typically becomes more conscious. However, the cognitive and the emotional develop from a common totality and always function in close interaction. (Furth 1987.)

The emotional aspect tends to affect the cognitive learning result, even if it does not influence the epistemological content itself. The stronger the emotions that are present in the learning situation, the stronger the emotional obsession will be. In the other direction, the emotions are also influenced by knowledge. Comprehension and perception, knowledge and insight all also influence the emotional patterns. Of this interaction cannot be stated that particular emotional features are obsessed by a particular comprehension. It means that the emotional patterns gradually shift through processes of assimilative nature under the influence of impulses from the individual's constant interaction with the environment.

2.3.6 Learning and Personal Development

Personality is usually understood as the individual whole with all of its qualities, motives, skills and knowledge. In learning, particularly within the educational system, personal development in general and the development of specific types of personal qualities have since the 1970's become increasingly an area of interest and study. The interest has a double basis in both development in society's qualification demands and the more general cultural and societal development. Previously the perception of these requirements concentrated on professional qualifications of a general or more or less directly vocational nature, but the development through the last 20-30 years has been characterized by

increasing focus on the qualification requirements based more on personality or what today is referred to as competencies.(Andersen et al 1994.)

Andersen et al (1996) summarizes current personal qualification requirements in the following categories:

Intellectual qualifications, or rational, systematic and analytical thinking, sociological imagination, problem solving, change of perspective and skills in diagnostics, evaluation, planning, and so on, centring on the individual's capacity for rational behaviour;

Perception qualifications, concerning precise sense perception, typically including precision in observation and interpretation;

Self-control qualifications, covering definitions such as responsibility, reliability, perseverance, accuracy, ability to concentrate, quality and service orientation – centring on the individual's inclinations and capacity to act in accordance with general instructions;

Individuality qualifications, covering definitions such as independence, self-confidence and creativity – centring on the individual's ability to act alone, especially in unforeseen situations;

Social qualifications, covering definitions such as co-operation and communication abilities, congeniality and sociability –centring on the individual's ability to interact with others;

Motivational qualifications, covering a range of definitions such as initiative, dynamism, drive, openness, keenness to learn, adaptability etc., centring on the individual's potential to keep up with and contribute to the development (sometimes called flexibility). (Andersen et al. 1996.)

All these categories contain both cognitive and emotional elements, but in varying proportions. With reference to the teaching and learning that can promote this kind of personal development, education must be organised “in such a way that it combines a concrete, typical vocational or academic qualification with opportunities for expanding the participants' motivation to develop understanding, personality and identity” (Illeris 1995, 188.)

2.3.7 Self-experience, Reflection and Biographicity

Reflection can broadly be linked to the development of personality and various more specific personal qualities, but in relation to learning its emphasis is on the development of the self and the functions of the self. According to Rogers (1959) the changes in the organisation of the self will be linked with the concept of significant learning. It again means somewhat the same as Mezirow's concept of transformative learning. If that parallelism is maintained, it leads to the assertion that changes in the self occur through accommodative and

transformative processes concerning the organised, consistent conceptual whole, which structures the individual perception of him/ herself and others, and of various aspects of life.

Personal development and development of personal qualities generally occur through accommodations that comprise both cognitive and emotional factors. Within the field of self-experience and self-relating, development occurs through reflection, i.e. through accommodations in which influences from the interaction between the individual and the environment are processed by means of reflection.

Consequently, reflection is not necessarily limited to internal processes, but can also occur through interpersonal communication processes, in which one uses other people as a kind of sparring partners, and performs the “mirroring” actively and externally as an aid to gaining insights into one’s own self-comprehension by observing the reaction of others and listening to their evaluations.

Biographicity is a concept that sums up reflection and personal development. In the present context it is important to be aware that it is something that concerns how people perceive and interpret their lives in relation to the opportunities they have and the choices they make. Thus it can be understood as an overall framework for learning through reflection, which after the breakdown of the external norm-oriented framework holds the individual’s self-comprehension and identity together. (Alheit 1995.)

2.3.8 Communities of Practice and Social Learning

While the cognitive and emotional dimensions of learning are primarily rooted in the individual’s biological-genetic constitution, and influenced both by individual and societal developments, the social-societal dimension is rooted in the social and societal contexts of which the individual forms a part. The contexts are mainly historic- societal in their constitution. For the internal psychological dimensions, the individual is the setting, while the action takes place through the individual’s meeting with the surrounding world. For the interaction dimension, it is the surrounding world that is the setting, and the action is the individual’s deeds in relation to this surrounding world. Since cognitive structures are always emotionally obsessed, and the emotional patterns are always affected by cognitive influences, it is thus the totality of the two internal psychological dimensions that is in the interaction with the surrounding world and the social-societal dimension, as follows:

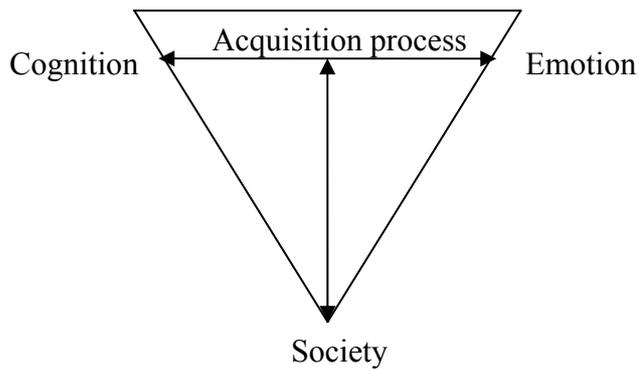


Figure 5. Interaction between the dimensions in learning.

A new theory of social learning appeared which has a link with the Russian historical tradition, but parallels as well with, say, social constructionism. Its developer is Wenger (1998). His social theory of learning was first expressed as “situated learning” theory, which focuses mainly on the social conditions of learning. In further elaboration of the ideas, in the connection of communities of practice, Wenger embraces various dimensions and gives priority to the social context in learning. Four main conditions of learning are placed around the central concept of learning, and they are practice, community, meaning and identity. The first two clearly relate to the social context, while the latter two reach towards the individual dimensions, although seen from a social perspective. They are explained as participation of the social process of learning and knowing and characterized as “a way of talking about learning individually and collectively” (meaning), to experience it and the world as meaningful. Identity, again, is a way of talking about how learning changes who we are and creates personal histories of becoming in our social contexts.

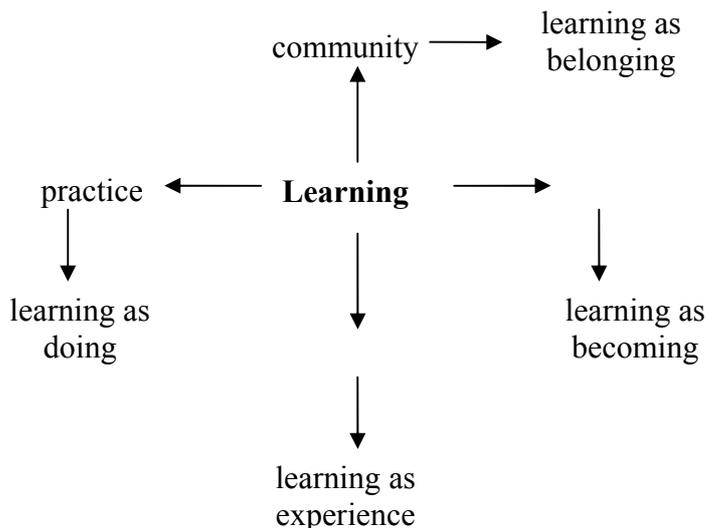


Figure 6. A social theory of learning (Wenger 1998, 5).

The social dimension of learning is tied to community and practice, and creates meaning and identity, and therefore learning presupposes action and participation and converts them into experience and development. - The most important quality of the theory lies in its comprehensive and coherent understanding of the social level.

2.4 Reflective Skills as a Key Element in Developing Pedagogical Approaches

The purpose of reflective work is to integrate beliefs and images, program knowledge and classroom experiences both on personal and collective levels. New understandings are created in the intra- and interactive processes by sensitizing existing constructions, analysing them, soliciting conflicting perspectives and resolving conflicts into new, better constructions. Thus reflection is very individual and personal, on the other hand it is collective by nature. The dialogue between the personal and collective should take place all the time. (Senge 1990.)

Reflection is a special way of thinking. It consists of three functions: directing action, constituting the unknown into a holistic unit and re-evaluating the arguments of prior knowledge. Through a reflective process the actor tries to find alternative ways of interpreting the experience. Sometimes reflection arises from confusion and ends up in asking questions, conscious problem solution and finally in a new idea. The prerequisite of reflective practice is critical and profound awareness of the culture in which one lives. (Mezirow 1998, 1995, 1991, 1990.)

Experiences do not teach, unless they are reflected. Consequently, experience is not the same as expertise (Berliner 1986). Reflection as a process means organising experiences to develop action at work and personal practical knowledge. The learner doesn't adopt information as such, but interprets and constitutes the reality from his / her personal point of view. To renew his/her professional skills, a teacher has to examine, reflect and question his/her conceptions of learning, school practices and their effectiveness. This directs the teacher's personal development process, since it implies examining the relationship between theory and action, adopting a critical attitude towards action and its conditions and involving oneself ethically and morally in action

Concerning feelings and emotional reactions, reflection comprises also the unspoken emotional contents of the messages. They cause an emotional reaction in the recipient. Recognising feelings and being able to verbalize and clarify them is essential in reflection. Working on negative emotions as well as being aware of positive feelings helps to evaluate and re-evaluate matters sensibly.

Thus the process of critical reflection always carries the storm of feelings which has a deep influence on the person.

If reflection takes place here and now, in real time, it is meaningful activity: What does this mean? How do I feel the things? In working communities, real time reflection creates mutual dependence (Ruohotie 2000). It comprises the relationships between the community members, observing the factors which prevent or support the action at work, technical aspects of work and the person's own feelings (Ruohotie 1997, 1998).

Mezirow (1991) defines three aspects of reflection:

- the objects of reflection (realization, thinking and action),
- the awareness (ordinary, affective, distinguishing and evaluative reflection) and
- critical awareness (conceptual, psychic and theoretical reflection).

In intensive information society, reflection is the prerequisite of individualization and the validation of professional identity (Ojanen 2000). It is not only thinking, it is a method of mastering the information which is to be used for understanding action. It does not, however, develop automatically and not by the means of direct teaching. The ability to reflect is different in different people: some are reflective by nature, some gain from guidance, the others may stay poor reflectors even if guided. Reflecting means finding the questioning side in oneself, increasing it and becoming sensitive for what happens in oneself (Boud, Keogh & Walker 1985). Although guidance is important, the person benefits by the tendency to work on his/her experiences and observations as well as to think aloud. Speaking and writing are important, for articulation reveals something about thinking.

2.4.1 Individual Reflection

Systematic individual reflection helps the teacher students to become aware of themselves as persons and professionals, and become more daring to see themselves realistically. Their internalized knowledge will widen and their ability to reflect on their ideas and actions will be enhanced. The learning journal will serve this purpose well, since in reflective practice the experiences are not always possible to be reflected on the spot. Preserving them in mind and remembering as many of the incidents connected to the experience as possible should be followed by recording them in the journal. It preserves the documenting and material for later reflection. It prevents too hasty evaluation of the experiences, which might lead the person astray. No actual learning or change in attitudes and assertiveness in emotional intelligence would then take place. The learner might lose a lot of valuable information without a reflective process.

Habermas (1984) sees reflection as a process in which the person becomes conscious of the contexts and the influence of social and ideological stresses and limitations which were earlier taken for granted. Being aware of them he/she can control their influences. For instance, through inquiry orientation towards the working situation a teacher can become more conscious and professionally more independent of it.

An earlier research showed that changes also implied cooperation with colleagues. Thus, besides personal, also collective tacit knowledge and making it conscious is understood to be significant. (Nissilä 2004.) In working communities this kind of reflection cannot be compelled but is worth fostering. The participants should be encouraged to reflect on the common themes afterwards critically and more deeply. Critical reflection presupposes individualization of learning to constitute new perspectives into emotional and aesthetic experiences in life and at work. (Mezirow 1991). This kind of work avails of a systematic model. Boud's model of reflective learning goes on in three cycles:

- 1) behaviour, ideas, themes,
- 2) recollecting the experiences and paying attention to emotions, re-evaluating the experiences, and
- 3) a new perspective to the experience, changed practice, readiness to apply new information and the ability to act. (Boud et al 1985).

The cycles express the same sequence as appears in Mezirow's aspects (Mezirow 1991): 1) objects of reflection, 2) awareness and 3) critical awareness. Thus, in collegial reflection the unique objects involved are critical awareness and the change of perspective.

Schön's (1983) reflection-in-action is connected with learning from experience. It can be seen sequential or intertwined with the journal practice. When a person has learnt to be systematic in his/her observations and to express them verbally in the reflection journal, reflection-in-action can appear during the action, as a discussion with the situational elements. It means practising interactive and interpretative skills in solving complicated and indefinite problems on the spot. In other words, it seems that what reflection-in-action really is appears as "reading" the situation in a new way, trying new actions, in a new framework. It is thus not reflection in the traditional meaning, but is based on earlier reflection and situational sensitivity, and is sometimes called rather reaction than reflection.

Eraut (1995) also provides a detailed critique of Schön's concept of reflection-in-action, which, together with reflection on action has been adopted since the appearance of the conception. Eraut points to a lack of presented empirical evidence of reflection-in-action. He argues that time limits the scope for reflection-in-action, little analysis is possible without deliberation, and that

this requires more time than professionals have available. The concept needs therefore reframing.

Bengtsson (1995) emphasises the essential 'distancing' function of reflection and often unreflective use of 'reflection' by, e.g., teacher educators. Further he claims that in using the term 'reflection-in-action' Schön is confusing 'appreciation' (a presupposition for reflection and self-consciousness) with 'self-consciousness', and that 'to react on' or 'interact with' a situation is not the same as to reflect upon it.

Max van Manen (1995) recognizes the inappropriateness of the image of reflection-in-action when life in the classrooms is "contingent, dynamic, ever changing and situation specific", and so allows for reflection which is contemporaneous with action only in the most qualified and circumscribed sense. He introduces the notion of 'pedagogical tact' in which perceptiveness, understanding and feelings are instantly realized in action. He also challenges the notion of thinking as a predominantly metacognitive activity. Rather, he claims, time in pedagogical action requires a direct, intuitive type of knowledge which goes beyond the rational. Van Manen believes that the practice of teaching possesses its own integrity and that being a professional involves more than the possession of technical skills. (van Manen 1995.)

2.4.2 Collective Reflection

In collective dialogue there is free and creative exploration of complex and subtle issues, a deep listening to one another and suspending one's own views. By contrast, in discussion different views are presented and defended, and there is a search for the best view to support the decisions that must be made at the time. Dialogue and discussion are potentially complementary, but most teams lack the ability to distinguish the two and to move consciously between them. (Senge 1990.)

Team learning thus involves learning how to deal creatively with the powerful forces opposing productive dialogue and discussion in working teams. The so called defensive routines on one hand protect us from threat of embarrassment, but on the other hand, in doing so prevent us from learning (Argyris 1982).

In team learning discussion is the companion of dialogue. How do they differ from each other? In discussion you make motions, defend your proposals, until the best model of realisation has been chosen. In the process you are defensive and play like in a ping-pong game. This is needed when common agreements must be arrived at. Discussion is not for examining and becoming familiar with complicated problems like in a group/ collective dialogue. The group is to be

able to act both in discussions and dialogues. Action is the central aim of discussion, but the dialogue aims at creating new horizons and models of action.

The last phase of collective reflection in this model is individual post-reflection (Boud et al 1985). After the group has examined and shared the experiences and feelings, the individuals evaluate their experiences once again, now against the background of collective experiences, in the post-reflections. The new knowledge which is created through various reflective phases is, hopefully, connected to the epistemic structures of the person.

To become successful, the group dialogue or collective reflection session needs the following three prerequisites:

- the participants must suspend their assumptions during the report giving
- the atmosphere must be open and the participants must regard one another as colleagues
- there must be a facilitator who holds the context of dialogue.

Collaboration for professional development means sharing power and mutual interaction. It presupposes common aims and interests, collective responsibility and coherent needs. It means a change in teacher culture. Reflection in this change means an interactive process between earlier experiences, actions, personal theorizing and understanding theories. Its significance is in the gradual construction of personal knowledge and meanings as well as in making implicit things explicit.

2.4.3 Knowledge, Reflection and Complexity in Teachers' Work

Structuring a reflection process does not always tell us very much of the content of reflection. Earlier research of student teachers' reflection (Nissilä 2004) shows that the focus of reflective content was pedagogical content knowledge and the student teacher him/herself. The journals focused on the environment, on the behaviour, both effective and less effective behaviours in teaching contexts and the behaviour of learners as well, on competencies: what they could do in a constructive manner in teaching contexts; and on beliefs about oneself as a teacher, about learners and outcomes.

In reality things can be more complicated. Beliefs are often deep-rooted and persistent. The change in them cannot be brought about easily. A significant issue in the change is how a student teacher views his/her professional identity, what kind of teacher she/he wants to be. Or the problems may be even more complex: the student teacher may be enthusiastic in his/her subject (mathematics, science, languages, etc) and finds his/her inspiration there rather than in building and maintaining a relationship with the learners. The problem may be a limiting self-concept interfering with the development of a number of personal qualities. In case he/she should be made receptive to the possibility that these qualities can be developed, the result might be a renewed sense of inspiration and enthusiasm

for the teaching profession. To get that process moving, it is not enough to reflect on the environment, behaviour and competencies. And even reflection on beliefs does not go to the heart of the problems.

The “onion model”, a variant of the so-called Bateson model (see Dilts 1990 and Korthagen 2004) provides a framework for the problem sketched above. The idea behind the model is that inner levels determine the way an individual functions on the outer levels, but there is also a reverse influence.

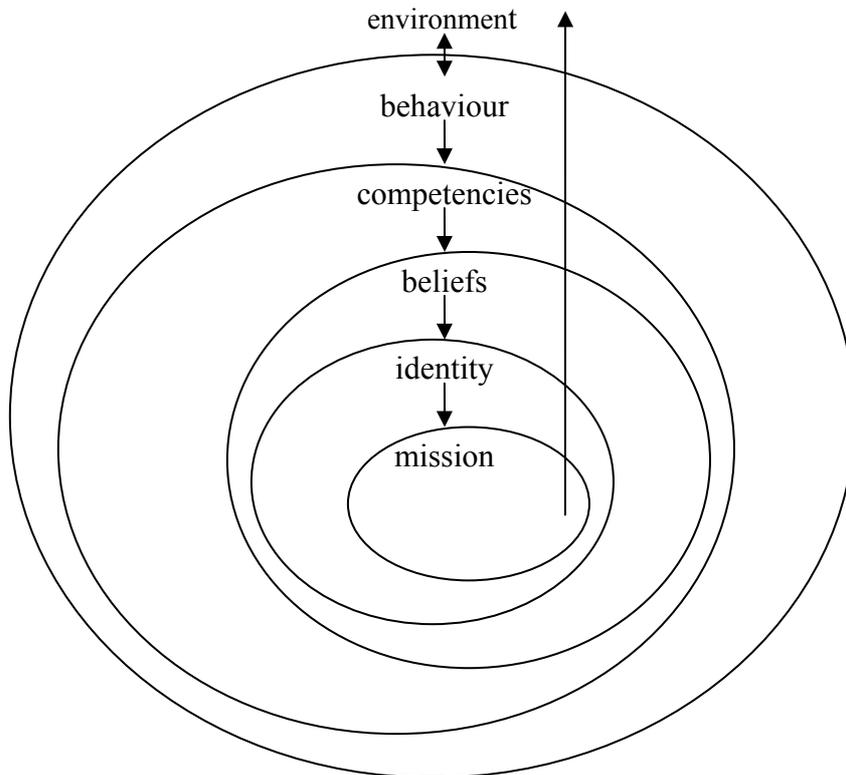


Figure 7. Description of the different levels of core reflection

The levels of (professional) identity and mission are added to the previous levels. Reflection on the level of mission triggers such issues as why the person decided to become a teacher, or even what he sees as his/ her calling in the world. This level is concerned with what inspires us, and what gives meaning and significance to our work and lives. This is a transpersonal level, since it involves becoming aware of the meaning of our own existence in the world, and the role we see for ourselves in relation to other people. While the identity has to do with how we experience ourselves and our self-concept, mission is about being a part of meaningful wholes. (Palmer 1998, Korthagen 2004.)

Getting in touch with the levels of identity and mission has a very practical significance. For instance a novice teacher may be so focused in surviving in the classroom that he/she takes the role of a policeman (identity level). This kind of teacher has quite a different influence on the learners from the one who is conscious of their interests and needs and whose actions are sincerely rooted in a

pedagogical ideal (mission level). The question is thus of the difference between a power struggle and the atmosphere of togetherness.

When reflection proceeds to the levels of identity and mission, it can be spoken of as *core reflection*. Still, it starts within a concrete situation which gives rise to reflection. Reflection is usually triggered by something that is in a student teacher's mind. It can be a feeling of dissatisfaction or some incident that affected the relationship with the learners. If the student teacher starts here an extensive analysis of the problematic situation, it may lead to a narrowing of available action tendencies: the student teacher is inclined to think within the boundaries of the problematic framework and in this way often loses contact with the deeper levels inside. In core reflection, the focus is much more on (re)establishing this contact, and on creating room for new possibilities. (Levenson 1992, Fredrickson 1998.)

In core reflection the following questions help: 1) What is the ideal situation, i.e. the situation which the teacher wants to bring about? And 2) what are the limiting factors preventing the achievement of the ideal? The first question is connected to the levels of identity and mission. During the process of becoming aware of the ideal situation, it often appears that the difficulties in achieving the ideal are not restricted to the present, but rather that they often appear in other situations as well. A relating factor can be experienced as related to the environment (a troublesome class, a neglectful school management). Still, what is important here is to look at the ways in which the teacher in question may restrain him/herself. It can be: limiting behaviour (e.g. avoiding confrontation), limiting feelings (e.g. 'I feel powerless'), limiting images (e.g. 'the class is a mess') or limiting beliefs (e.g. 'I have no influence on this').

An important thing in answering the above questions is that the person becomes aware of an inner tension or discrepancy which inhibits the realization of the ideal situation. The essential thing is for the teacher to take a step backward and to become aware of the fact that he/she has a choice whether or not to allow him/herself these limiting factors to determine his/her behaviour. This awareness of having a choice is one of the most fundamental factors in a person's development to personal autonomy (Sheldon et al 2003, Nissilä 1999a).

Core reflection, which is examined above, brings the research to the area which up to these days has received very little attention. Tickle (1999, 123) writes:

"In policy and practice the identification and development of personal qualities, at the interface between aspects of one's personal virtues and one's professional life, between personhood and teacherhood, if you will, has had scant attention." Such qualities as empathy, compassion, love and flexibility are mentioned by Tickle. Other examples are courage, creativity, decisiveness, and spontaneity. These are, in fact, essential qualities for teachers, qualities seldom appearing on the official lists of important basic qualities. This focus on core qualities is called positive psychology. It is "a reaction to the fact that for too long psychology has

focused on pathology, weakness and damage done to people, and hence on 'treatments' ". (Seligman & Csikszentmihalyi 2000, 7.) They point towards the importance of positive traits in individuals, which they call character strengths. They mention as examples: creativity, courage, perseverance, kindness and fairness. A central issue is how these strengths mediate between external events and the quality of experience, something that is directly relevant to teacher education.

Character strengths or core qualities can produce desirable outcomes, but are also morally valued in their own right, because they "fulfil an individual" (ibid). When people are referring to their strengths it correlates with the meaning "this is the real me". Among the most important skills of a supervisor wanting to promote core reflection is the ability to recognise and promote the development of core qualities. In supervising the 'looking back' -process it is important to focus on the ideal situation as well as the limiting factors and show empathy for both. Another important factor is that the supervisor can make use of self-disclosure by sharing parts of his/her own struggle with personal ideals and inner limitations, while modelling the process of core reflection (Egan 2000). In the confrontation-process the supervisor can help the student teacher become aware of the tension between the ideal situation and limiting factors. Any form of confrontation needs empathy, but this is even more important during the process of core reflection, in order to ensure that the supervisory setting remains being experienced as safe and supportive. (ibid.)

In the promotion of reflection, the supervisor often notices that the reflection will proceed 'from outer to inner', something that one has experienced in his/her own contact with the 'environment' (e.g. a conflict situation) provides an opportunity to direct the reflection towards the more inner levels. It is also important that these inner levels can be translated into outer, concrete behaviours so that the inner and outer come together. One cannot, however, force people to delve more deeply: they have to feel the need to do so themselves. However, people can be helped to become aware of the often unconscious need within to delve more deeply for hidden inner strengths, since the need to feel competent is one of the basic human needs. (Deci & Ryan 2000.)

Just as in ordinary reflection, the important thing is that student teachers are finally able to use also of core reflection autonomously, i.e. to go through the process without the benefit of supervision. In ordinary reflection, one of the main aims is to enable experienced teachers to do so while they are actually teaching (reflection-in-action, Schön 1987), or, rather than that, to make use of their earlier outcomes of reflection in split-seconds decisions (Eraut 1995). The same is true of core reflection: to learn to apply it whilst at work. Good teaching is characterized by a proper balance between the various levels of reflection.

3 THE METHOD OF THE STUDY

To enhance the realization of developmental growth of vocational teacher students into professionals with pedagogical thinking skills, combined with the vocational expertise acquired before teacher education, this study was started in 1999. Material was collected up to 2004. A sample was chosen for closer study. This sample includes the developmental 'arch' of 50 student teachers from the beginning to the end of education. It can be observed and studied in their written documents.

The study of teachers' / student teachers' narratives - that is, stories of teachers' own experiences - is increasingly being seen as crucial to the study of teachers' thinking, culture, and behaviour (Connelly & Clandinin 1987, 1999; Carter 1993; Clandinin & Connelly 1995, 1998; Feuerwerker 1997). Connelly & Clandinin note that "Narrative is concerned with specific, concrete events in a personal life and is concerned to give an account of a person. Furthermore, through the construction of personal philosophies, images and narrative unities, narrative method offers an interpretive reconstruction of parts of a person's life" (1987, 134). Narrative research has become an important means for understanding teacher cultures and, consequently, the development of student teachers as knowers of themselves, of their situations, of students, of subject matter, of teaching, and of learning (Clandinin & Connelly 1998). The writing of memories, planning, experiences and reflection during an important phase of development in a student teacher's life makes a powerful tool to document the way discursive environments provide for the construction of teacher identity. Social, cultural and institutional discourses set the 'conditions of possibility' (Foucault 1979) for who and what a teacher might be.

Some scholars have even suggested that our lives are storied (Bruner 1986, 1990; Holstein & Gubrium 2000). There is not only a story of self, but the self is narratively constructed. In other words, identity can be understood as a story with narrative constructs. These stories are important both as means through which individuals understand themselves as well as tools for taking action. Narrative research, i.e. analysing the written memories, reports, reflections and self-assessments, like in this study, highlights the situatedness of self: It takes place in response to situations, practices and available resources. One of those resources is emotion which provides the writers with inner perspective for interpreting and responding to experience. In school settings the student teachers as well as teachers are emotionally engaged in forming their identities, when

they are involved personally, socially, culturally and historically also in identity formation.

The student teachers were advised to write a journal through their studies in teacher education on their experiences, reflections and emotions. Besides cognitive reflections, i.e. connecting practice and corresponding theory together, self analyses were opted for and feelings were asked to be recognised, written down and interpreted. The journals were advised to be read from time to time and summaries of them to be attached to their reports in several phases of teacher education.

3.1 Phenomenographic Approach

Phenomenography is a theory of how to describe manifestations of human experience and qualitative differences. The object of analysis consists of expressed experiences. It is argued (Marton & Neuman 1989, 37) that people's different ways of understanding or experiencing the surrounding world is all there is, whether these understandings are called scientific or not, whether they are called everyday understandings or not. We may then compare different understandings with each other. We can compare students' conceptions of a subject matter, but we cannot compare students' understandings with reality itself.

This means that it is impossible to reach absolute truth about something in principle, since new interpretations are continuously made both by us and by every new generation. In this sense reality is experience. We shall never reach a description of the world in this way, only a description of what we have experienced. In addition, there is the idea that consciousness is multilayered by nature; in being conscious of something (e.g. that I am reading) I am always simultaneously, at least implicitly, aware of what, why, where I am reading. The idea of consciousness is consistent with the idea that we cannot separate memory, perception and expectation, other than logically. The epistemological questions still stay, i.e. how knowledge develops or changes, how understanding is born, and how we learn new knowledge.

The distinction between linguistic reference (epistemology) and mental reference (the ontological question) is clarified by noting that a term (sign, word) has no relation to an object but is always dependent upon how it is treated by an individual mind. Thus a theory of consciousness is always primarily in relation to a semantic (epistemological) theory. (Uljens 1992, 63.) This means that the experiences themselves do not set limits to how they may be described; only the describers may define how this is done, because the descriptions are always made in relation to the subjects' previous knowledge. According to phenomenography, learning has occurred when an individual exhibits a change in his or her way of perceiving the world.

Phenomenographic reflection starts from the natural attitude. The research interest is individual conceptions decontextualised from a 'lifeworld'. The results of empirical research are presented in terms of 'categories of description'. They are the way of expressing the different ways of functioning. They are neutral both with respect to empirical subjects (individuals) and to the context of lifeworld they stem from. According to Marton (1981, 190; 1984,20) conceptions are not related to the individual subject and his or her 'lifeworld' but to other expressed, de-contextualised conceptions.

To define the difference between phenomenology and phenomenography, we can note that the difference lies in the ways of taking attitudes to experiences. *Phenomenology* asks how a person experiences the world. It tends to study the experience and find the essence in the conceptions that we use to describe the experiences (Gröhn & Jussila 1989). Phenomenology tends to capture the richness of an experience and develop a theory of a single experience. In phenomenology it is important to make difference between a single experience and conceptual thinking. (Niikko 2003.) In *phenomenography* the researchers ask which are the critical dimensions in peoples' ways to experience the world. It tends to describe the world such as a certain group of people experiences it. Phenomenography does not, either, make a clear distinction between pre-reflective experience and conceptual thinking and is less interested in a single person's experience. The tendency in phenomenography is to describe the ways how the phenomenon in question is experienced and conceptualized. Thus phenomenography is interested in the variation of the experiences. (Järvinen 1985, Niikko 2003.)

This kind of development would actualize the hermeneutic dimensions. Prior theory has a guiding role in empirical research and the knowledge interest of a specific study. This does not mean that prior theory determines what interpretation will be reached. On the contrary, a researcher must be acquainted with knowledge (theory) in the field that he or she is investigating in order to do a good interpretative job. Previous knowledge is by no means a hindrance to being open-minded both in gathering data and in analysing data. We normally possess the ability to suspend consciously our personal understanding of a subject matter in order to understand somebody else's argumentation.

What is then the present author's previous knowledge? The preconception is that of an experienced teacher's (17 years in a senior secondary school), a teacher educator's (20 years) and an educational researcher's (12 years). The experience is multilayered: the simultaneous experiences of all three activities have made it possible to study theories and observe their practical applications in life and learning. And understand something of the phenomenon called learning or development or even empowerment. This preconception is important to be conscious of, since, as already said, phenomenographic research contains the interpretations of the researcher.

3.2 Data Gathering

A huge amount of material was collected in the form of essays written through the time of teacher education. This first collection included essays from ca 500 student teachers during 1999-2004, several essays from each. All principal lecturers in the school of vocational teacher education contributed to the collection as far as they had preserved the essay material. All the essays were studied to see which themes they were focused on. The essays appeared to yield the richest material from the beginning of education, from the themes connected somehow with their professional identities around the mid phase of education, and their teaching practice periods.

Along the process of closer reading the number of research persons was reduced to 50 for the following reasons: 1) the researcher had essays from the students included through all the education period, 2) the research persons were men and women, 3) they were of different ages and 4) represented different fields of science and different educational backgrounds (Appendices 1 and 2). After reducing the number of research persons to 50, a closer study was first concentrated on the themes of prior learning experiences, observed learning styles, learning conceptions, learner knowledge, knowledge of learning contexts and organizations, lesson observation, ideal teacher and student images as well as planning, implementing and evaluating a sequence of lessons and hence on an overall conception of a teacher's work and oneself as a teacher.

During the reading process it became clear that all of the 50 research persons were not equally interested in all themes. The material for the closer analysis was chosen on the basis of the quality of material: the essays were expected to deal with the theme in question widely enough. An individual choice of the essays was made for the study of each of the 9 phases of teacher education, the result showing that 24 - 50 persons were included in the analyses of each developmental phase. The number of research persons of each chapter of analysis is given in chapter 3.3, table 1.

The nine themes of writing, which were described earlier, are essential in teacher development. They were reduced to the following main themes:

1) Self-development is a concept which is seen in close relationship to professional development. The self is not an island in itself, but develops in a specific culture with its socializing forces. To increase self knowledge and awareness of themselves, the student teachers were first asked to recollect their own past schooldays, define their learning styles and write about their learning conceptions. The choice and characteristics of learning conceptions were made known through lectures, literature and self-study. What is of crucial importance in a teacher's career is self-understanding. Knowing oneself was therefore emphasized. Prior learning experiences, seen from various angles, were the first theme of documenting for this study in the following way:

- 1.a) Prior learning experiences
- 1.b) Learning styles
- 1.c) Learning conceptions.

2) Knowing the students and learning situations is another area which is important for a reflective practitioner. Teachers need to understand even the non-cognitive elements of student learning processes: the tacit dimensions of their codes, commitments and affects. The knowledge of school cultures and situations gives the right direction to interpretations and decisions. It also plays an important part in reflection-in-action when a teacher discusses with the situational elements. Teacher's situational sensitivity is a skill which develops through reflected experiences. Besides observation practice in general, another important thing is learning to observe the learners and situations as objectively as possible. For this reason the view of action research was combined to the data collection of the observed items. The documents of observations form the material of the second phase of the study.

3) Practical knowledge of learning contexts cannot be learned in formal courses or from the books, but can best be learned through participating in the settings relevant to teachers, in authentic action situations, in which teachers' practical knowledge can become visible and transparent to others, and also during discussion and critical inquiry. (Lauriala 1997.) The teacher's professional self is developed in a community of persons involved in teaching and learning as colleagues, students, researchers, teacher educators, administrators or politicians in an environment of openness, mutual help, trust and understanding. Many good, but conflicting intentions have the power to influence teacher practice. The means are embodied in curricula, syllabi, standards, financial incentives, school structures, teacher and student assessment systems, textbooks and computer purchases.

There has been a flood of public discussion about apparently ineffective schools and demands for improvement in teaching and learning inside the EU (Beaton et al.1996) as well as in Finnish vocational and tertiary education. Schools are urged to network with each other for synergy, change teaching methods, modify subject matter or increase amount of assessment. The teaching profession cannot hide behind arcane rituals and antique language. These, increasingly, are challenged by accountability measures adopted by governments, yet consensus about what goals education should seek is absent.

For the reasons mentioned above, in the present teacher education program, the student teachers entered various schools to interview the administration and the staff, to observe the general and special practices and to observe teachers in their work. Phase three, the second observation and inquiry task, though an entity, was divided in sub-tasks in the following way:

3.a) the observation and familiarization of the learning contexts, values, norms, curricula and organisation of work,

3.b) the observations of the lessons: planning, teaching methods, evaluation.

The observation reports on the school organisations and contexts as well as of lessons form the documents of the third phase.

4) **The demands on teacher roles, interaction and collaboration** are manifold. Reform pedagogies stress student interests and conceptions based on constructivist theories. Teachers are no longer so central in classroom agendas. The teacher's role is conflicted by its commitments to intellectual discipline – to meeting objective standards – and at the same time giving all students encouragement and affection. Change presses in on teachers from two directions: from researchers with reform agendas based on social science theory and from government policy based on economic ideologies. Teachers are asked to offer students more individualized and individualistic instruction, but with fewer resources, or with resources which require new skills such as accessing the internet. In the midst of these often conflicting demands the novice teacher should keep in mind his/her personal targets and purposes, personal vision and mission. Reflecting *what an ideal teacher is like as well as what the student teacher's personal aims and goals will be* as appearing in a student teacher's preconception and at the threshold of the final teaching practice period is the task in the fourth phase, together with the observations of teacher roles, interaction and collaboration.

5) **Practical teaching skills.** To give student teachers opportunity to develop their practical teaching skills as well as to express practical experiences which can be used to advance analysis and reflection, to make the tacit explicit, and get useful feedback from their action, they were given a chance to *plan, implement and evaluate a set of lessons*, most often a sequence of 16-20 hours of continuing teaching to the same group of students.

In addition to traditional expectations, teachers are expected to act as clinicians and managers of new technologies as they implement rapidly changing educational policies. They are asked to reflect their practices, but rarely are involved when change agendas are formulated or resources are shared. The practical demands of the job are changing; and so are the educational objectives. They increasingly stress individualistic competitive advantage at the expense of commitment and collective welfare. On the other hand, researches on professional practice in general suggest that professionals work as much by tacit knowledge as by applied science (Polanyi 1958, Schön 1983, Benner 1984, Dreyfus and Dreyfus 1986). The same could be said of teachers. Often the complex nature of practice involving whole people in complex and ambiguous situations is misunderstood; what teachers know is underestimated (Olson 1992, Eraut, 1994, Tomlinson 1998).

Teaching is a moral enterprise – not only defined by skill and craft in production – the activities which we see now measured – but also by the worth of what is learned and the manner of its learning. When we talk of a good teacher we do not mean just an efficient or compliant teacher, but a person who is able to consider what is good and pursue that. It takes a certain virtue to become a teacher (McIntyre 1984). He also points out that a practice gets better because people are willing to take criticism (honesty) from those they recognize as fit to give it (fairness), and are willing to act on that criticism (courage). Being honest,

fair and courageous are virtues. Because of such virtues it becomes possible to learn from experience. (ibid.)

The feedback from the tutor teacher (school) and the supervisor from the teacher education department were expected to take the form of reflective dialogue. The practice period was followed by a written reflective report and group dialogue in a seminar in the following way:

5 a) making a core plan for a period of teaching, making lesson plans and planning the evaluation of the students and oneself.

5 b) Implementation of the lesson plan: actual teaching practice and feedback. A private daily journal, a summary based on it and completed with individual reflection were written for the seminar after the practice. During collective reflection in the seminar the experiences of teaching were to be shared with co-students. The written evaluation by the tutor teacher on the practice was given later to the student teachers. The reflective documents of actual teaching practice make up the main material of the fifth phase study.

5 c) It is reasonable to suppose that the five phases of introduction to a teacher's career have some influence on student teacher's understanding of successful learning and teaching. Further, it is expectable that some ideas may become crystallized at the end, or that the focus of interest resides in a certain domain or in personal combination of domains. The critical reflection of events and shared experiences in collective reflection sessions may also lead to changes in their knowledge and beliefs. Thus, as their last task, *post-reflection reports* were written as an effort to view the practical experience of teaching in the framework of shared experiences after the reflective seminar. To keep the idea of summary clear, one-page reports were recommended. They concluded the theme of self-development and self image started at the beginning of teacher education as well.

Theoretical knowledge of psychological, sociological, didactic and pedagogical aspects was studied in lectures, workshops and assignments before, during and after phases 1-5. Educational theories were studied more closely in the process of composing a thesis connected with school practices and based on empirical material.

The method of study is a *qualitative thematic content analysis*. The research approach is that of phenomenography. The analytic unit is a thematic sequence, consisting of one or more words, units or sentences expressing one idea. The writers are referred to by initials of their names.

3.3 Data Analysing

The different phases of the material collection, documentation, analysing and reporting are described in the following table.

Table 1. The process of the study

<p>BACKGROUND MEASURES Preconceptions of the researcher</p>	
<p>Definition of the concepts significant in the realization of the research plan</p>	
<p>AIM to study the changes of pedagogical awareness and self-knowledge among the teacher students for pedagogical thinking and understanding teaching</p>	
<p>CARRYING OUT OF THE TEACHER EDUCATION PHASES 1999-2004</p>	<p>DATA GATHERING 1999-2004: 500 writers' essays, out of which the material from 50 essay writers was chosen as study material. N=289 essays in total, n=the number of essays studied closer in each phase. * = for research purposes.</p>
<p>FIRST PHASE Lectures, workshops and literature on learning styles, strategies and on learning conceptions</p>	<p>FIRST PHASE *Essays on personal and general learning styles & strategies (n=47) *essays on learning conceptions (n=50) *essays on personal learning histories recollected and reflected (n=45)</p>
<p>SECOND PHASE Lectures and literature on observing the learner Introduction seminar to teaching practise 1, Implementing the task Report and seminar after the practise</p>	<p>SECOND PHASE Structure observation schemes (action research and case study combined), *Essays on the observations with reflection (n=27) Oral presentation of the observations in the seminar, supervisors' notes</p>
<p>THIRD PHASE Lectures, workshops and literature on school organisations and contexts, on macro- and micro-planning, on teaching methods and evaluation Introduction seminar to practise 2 Teaching practise 2 After-the-practise seminar</p>	<p>THIRD PHASE Plans for the familiarization with the school contexts and work in schools *Essays on school organizations, cultures, curricula and observations (n=24)</p>
<p>FOURTH PHASE Observations and reflection on teachers' roles, interaction and collaboration in practice 2.</p>	<p>FOURTH PHASE *Essays on ideal teacher images, real and potential self-concepts, on teacher roles, interaction, methods and collaboration (n= 32)</p>
<p>FIFTH PHASE Lectures, workshops and literature on joint skills for teaching Introduction seminar to teaching practise 3 Macro- and micro-planning of the teaching period and lessons Teaching practise 3 Audition by the supervisors from the teacher education and constant surveillance of tutor teachers After-the-practise seminar 3 Reflection-post-action: two days later Evaluation of experiences in the framework of collective reflection Evaluation and comments by supervisors and schoolteachers</p>	<p>FIFTH PHASE Essays on didactics Plans for the teaching period Supervisors' observations (written) on the practical teaching *Reflective essays on the experiences of teaching including self-assessment Collective dialogues in the seminar (n=24) Supervisors' notes on group dialogues *Post-reflection essays (n=33) Written evaluations from the schoolteachers</p>
<p>ANALYSES AND REPORT Qualitative, thematic content analysis Report</p>	

3.4 Rationale in the Analysis of the Data

The subjects, the persons writing about their experiences were all second or third career vocational student teachers (Appendix 1). The subjects will be referred to by initials of their names.

The empirical material consists of a number of reflective reports in the form of essays through all phases of vocational teacher education from ca 500 student teachers and was collected to illustrate individual teacher education spans. I read the material through several times and started to see themes that were the most fertile in generating pedagogical thinking. The richest material came from the outset of education, from the themes connected somehow with professional identities around the mid phase of education, and from teaching practice periods (Appendix 2).

The first level. Secondly, the student teachers and their essays were listed to see if the individuals and their stories appeared evenly through all the teacher education period. With this in mind, I began to read the material again in order to see how the conceptions varied in relation to their depth and wideness. Finally, a sample was chosen for a closer study of individual experiences of 50 student teachers, 14 men and 36 women, of different ages and professions (Appendix 1). The material yielded 18 description categories out of 9 main themes.

The second level. It appeared that when the nine major themes were put on the time continuum, they concentrated on five developmental phases of the education process. Although the students had been given themes and titles to write about, they followed the instructions only loosely and wrote about the things that they felt personally the most significant. From this follows that all studied material was not equally informative on all topics. Consequently, a various number of essays ranging from 24 to 50 were chosen for a closer analysis. Each of the 5 phases was treated accordingly. It means that the same subjects were not included in all phases. The topics were the most important. The categories of description are here horizontal and equal, since the differences between the categories are mainly in their contents.

The third level. This level seeks to find vertical categories of description. In this study each phase has been dealt with as one unit, and each phase tends to aim not at an individual subject's experience but at a subject neutral manifestation of ways of functioning. This aspect is written under the title of summary at the end of each main theme, and it tries to find differences based on the importance or oftenness, for instance.

The fourth level. Here appears the overall manifestation of the levels of pedagogical thinking among second or third career vocational teacher students. It

is represented on the closing pages of the research results and gathers material from all previous results (tables 5,7,8,9 and figures 21 and 22).

The organization of writing throughout the passages in chapter 4 is that each passage/ phase begins with discussion giving the theoretical arguments of including the certain practice or tasks in the teacher education program. The discussion explains the views of the writer and compares them with those of other researchers on the topic. The viewpoints yielded by the comprehensive empirical material before the first level analyse has directed this choice of themes for writing. If previous research data deviate from the results of the analysed study material, arguments are given for and against. When the text proceeds to essay quotations, the conceptions presented are based on the research material.

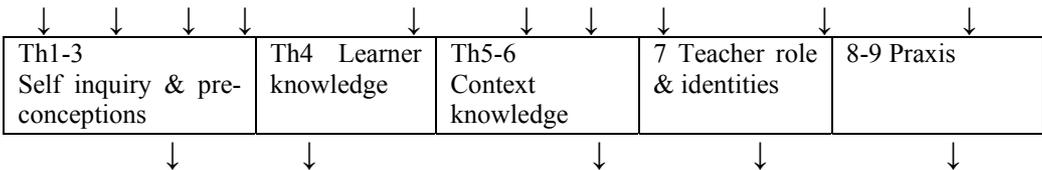
The process of phenomenographic analysis in this research is the following:

Empirical material or materials

Level 1 categories: Looking for categories of description: 18 categories, each of them including countless sub-categories. 9 main themes

Beliefs of learning Th1: pre-conceptions	Learning histories Th1: pre-conceptions	Learning styles Th2: self-understanding	Preliminary learning conceptions Th3: learning conceptions	Learner Knowledge Th4: knowing students	Context knowledge Th5: knowing school & administration	Social Communities Th6: social context of learning	School activities observation Th6: social context of learning	General self-concept Th7: teacher role and identity	Working self-concept Th7: teacher role and identity	Professional self-concept Th7: teacher role and identity
Affective domain Th7: teacher role and identity	Cognitive domain Th7: teacher role and identity	Practical domain Th7: teacher role and identity	Personal awareness Th8: conscious teacher-ship	Task Awareness Th8: Conscious teacher-ship	Process awareness Th8: conscious teacher-ship	Pedagogical thinking Th9: qualities concluded	Dialogues in teaching Th9: qualities concluded	↓	↓	↓
↓	↓		↓	↓	↓	↓	↓	↓		↓

Level 2 categories: Expressions placed on the time continuum of the education and development



Level 3 categories: Description of results at a more theoretical level

↓	↓	↓	↓	↓
Significant experiences adding to personal awareness	Significant experiences revealing the complexity of pedagogical interaction	Everyday reality of teacher's work as well as school and teacher culture	Personal self-concepts recognized and reflected. Roots in earlier observations	Domains of teacher awareness, conceptions, their interconnections and interplay

Level 4 categories:

Describing different profiles or interpretive modes of conceptual development: 1) Pedagogical thinking, and summary of interpretive modes: 2) dynamic dialogue in teaching as well as 3) the emerging definition of teachership

Figure 8. Different level categories of description in the present research (applied from Uljens 1989, 41)

3.5 Validity and Credibility

Because this study tried to describe the nature and variety of student teachers' experiences and conceptions during their teacher education span, such an approach of analysis was chosen as would allow keep close to the original data and the use of data in characterizing different conceptions and interpretations of student teachers of their experiences. Ericsson and Simon (1984) have discussed verbal data as an evidence of subjects' knowledge structures. In this study the development of subjects' cognitive structures and the change in awareness are recorded.

In the description of data, conceptions of experiences i.e. knowledge representations, the data of verbal protocols was put into another order by thematic arrangement. The data analysis was laborious especially at the first level of description, when an attempt was made to cover the whole range of variety in creating descriptive categories. Methods used in deriving and elicitation of the information as well as methods used in the subsequent analyses, in reducing, assessing and summarizing the data have been given in above passages.

For analysing different components of metacognition, critical experiences, styles and concepts, explicated statements were assessed and categorized according to the level and content of knowledge and understanding. In semantic analysis as well as in segmentation of protocols an analysis unit was an idea which was expressed in one or more words or sentence(s). The abundant use of examples taken from the subjects' conceptual models had the aim of showing original facts being used as foundations of interpretations. The interpretations, if

unclear to the researcher, were discussed with the subjects in the seminars and in e-mail messages.

For the analysis of the content and organization of the learner and context knowledge, the method of concept maps (Novak & Gowin, 1984) was used for the purpose to illustrate the verbal descriptions. Oral presentations of the subjects were organized to support the content analysis of the written summaries. Comparison of supervisors and student teachers were also available in seminars to clarify how they considered the issues raised from the experiences.

Methods used in analysing observational and experimental data from teaching periods, of observed problem solving, strategic knowledge and implementation, as well as interaction, observed situational knowledge and evaluation were systematic content analysis, complemented by discussions in post-practise seminars chaired by the supervisors to confirm the interpretations and by the written feedbacks from the tutoring teachers.

The method used to confirm the interpretations was iterative reading by the researcher and the colleagues who had acted as co-supervisors of the subjects. Outside readers were used as well to confirm the interpretations through the whole process.

Validity is here understood as a concept requiring multiple types of evidence to support specific interpretations made from the data. Qualitative research bases its validity on indicators like credibility, honesty, trustworthiness, authenticity and balance (Guba & Lincoln 1988). The truth value of the results has been aimed at by accurate and transparent description of data gathering and analysis.

Reading the texts over and over again, utilizing the theory and reasoned reflection the process provided concepts and relationships that appeared to be significant in the second and third career vocational student teachers' development. To confirm the *reliability*, the interpretation of the data was checked by interviews when necessary. The subjects found the interpretations made by the researcher understandable and regarded them as giving names to their experiences and supported their personal conceptions, which points to the reliability of the results.

Ontologically, the study presupposes that there exist many different views of reality, those of teachers, students, administration and families, for instance. In studying the inner representations of these realities, the external representations (writing, talking, drawing conceptual maps) have been utilized. The data gathered has come from the perceptions and interpretations of the subject persons, and is thus affected by contexts, emotions and relationships.

To assure *credibility*, attempts have been made to guarantee internal validity through the researcher's authentic experiences of the situations described, through getting to know the subjects and through being involved in the action. The researcher involvement in the action more or less is thus seen to guarantee the right interpretation of the findings: common language and knowledge of practice contexts shared with all subjects as well as experiences shared with

some of the subjects point to the feeling of commonness and encourage openness. The rich and detailed study material was connected with interpretative material and perspectives gained from educational theories. (Eisenhart & Howe 1993.) This method of enhancing credibility through intersubjectivity is in accordance also with Guba & Lincoln's (1988) view on credibility. According to them, the researcher has to check that the data and interpretations correspond, the construed concepts work and the arguments and conclusions are coherent.

This study does not preclude *generalization*, but can be used only as material of comparison between cases. The validity is thus more a matter of applicability of the findings to other situations. Generalization and applicability are not matters of statistics but of judgement (Eisenhart & Howe 1992). The study yields reports of experience which offer evidence for judgement. After all, the generalization lies within the reader. Consequently, if not generalizable, the findings can be transferrable. To be valid, the report must thus be clear, appropriate and useful. It means that the reported findings should be applicable by the audiences (*ibid*). This refers to pragmatic conception of truth.

To enhance *confirmability*, the following procedures were taken: clarifying the framework of the researcher, clarifying the process of study, making the dealing of documents transparent, discussing of the researcher's interpretations with the subjects either orally in seminars or literally in e-mails, utilizing many sources of data and considering the data from many angles of theory and perspectives. The informational adequacy of the samples has been aimed at by eliciting the data for analyses. Methodological triangulation has also been used in most samples of study to be able to discern the meaning of phenomena from the experiences behind them. The meaning of data was checked by interviews when necessary. Data gathering in different times allowed the comparison and validation of data (time triangulation). The same purpose was attained by using informants other than the subjects. (Guba & Lincoln 1994.)

Subjectivity is inevitably present in this research: it is even a prerequisite of the study. It does not mean distortion of the results, but, instead, more relevant findings. The question is thus not about stiff measurements but of the relevance of study (Cresswell 1998). Without an emotional commitment of the researcher this kind of comprehensive study would not have been initiated or accomplished. Being aware of subjectivity, the researcher has tried to be conscious of her emotions and to articulate them and exploit self-criticism as well as collective reflection with colleagues whenever possible and necessary. It has led to understanding that the subjectivity of others must also be respected.

Since the student teachers' reports and essays which were dealt with here were compulsory assignments, it guaranteed a great amount of material. Except one task (learning conceptions), the assignments were not marked with numbers. Instead, the student teachers were given written feedbacks. This was supposed to prevent writing to please the supervisors or gain good marks. I also offered the subjects a chance to correct or confirm the supervisor's interpretations, if necessary, by giving feedback to the supervisor's evaluation.

Although teacher thinking is in general context-oriented, emotional and inconsistent (Calderhead 1987), the findings of this study tell less of inconsistencies but more of developmental aspects. The discrepancy with some other research reports on the same theme lies in the fact that qualified teachers live in different situations than student teachers. For that reason the present subject persons were more open and free to utter their conceptions and comment on their observations and experiences than inservice teachers. This gives reason to suppose that the material of this study is credible and earnest as based on real experiences and their interpretations.

4 RESEARCH RESULTS: THE PHASES OF DEVELOPMENT TOWARDS TEACHING PROFESSION

From the different types of occupational knowledge, cultural knowledge represents the oldest and weakly recognised one. Nevertheless, it plays a significant role in teachers' professional learning, especially during formal teacher education, teaching practice periods and during induction. Cultural learning starts, however, before entering teacher education, students have learned a lot about teaching as pupils and students, through anticipatory socialization processes, observing the behaviour of their teachers (Lacey 1977; Zeichner & Gore 1990; Lauriala 1997), which makes the cultural knowledge very resistant to change. Actually, earlier research on student teachers tends to suggest that their teaching relies heavily on the images of practice that are acquired from past and current experiences at schools (Calderhead 1987). These cultural images can be taken and implemented uncritically. The cultural ethos at school also impedes reform enterprises and explains why school innovations seem to come and go without necessarily having many real effects.

The cultural view and ways of acting are not regulated formally, but they can be very implicit or unconscious (Altman & Chemers, 1984). There are also studies which indicate how the knowledge learnt during teacher education is washed out in the reality of teacher work. Hence, intervention into teachers' professional learning is needed during teacher education, to break the chain of implicit experiences of cumulative socialization, which tend to maintain the status quo at school. (Lacey, 1977, Zeichner & Gore, 1990, Lauriala 1997).

Teachers' cultural knowledge involves norms, values, rituals, myths, beliefs, typical ways of acting as well as accepted ways of solving problems, and what is to be regarded as a problem within teacher culture. According to Buchmann (1991, 279) what is learnt in social environments tends to direct and shape what we see, want and know; it leads to a certain way of looking at the world, in other words, to a teacher perspective. Cultural knowledge is collective property of teachers, and partly situational. Further, features of school and teacher cultures can often be regarded not only as national or international, but as universal and cross-situational. (Britzman, 1986; Hargreaves 1980.)

4.1 Student Teachers' Increasing Awareness: Prior Learning Experiences

So far, too little conscious attention has been paid to cultural and practical knowledge of teachers in teacher education programs, although their significance has been recognised since the end of the 70's. It has still largely remained uncontrollable and unpredictable knowledge that teachers learn mainly during their teaching practice periods, and later in their work places, based on their own experiences, via trial-and-error. These features clearly point to intuitive learning and to the experiential and private nature of teacher knowledge. Hence, to make student teachers' implicit knowledge of school learning explicit and to develop a change oriented vocational teacher education program, the different types of teacher knowledge as well as the domains of teaching profession were approached through individual and collective reflection of past concrete experiences. The reflection processes were widened with dealing with attitudes and implicit conceptions of learning adopted in prior professions.

4.1.1 Knowledge and Beliefs of Learning

Several research reports show that students' prior learning experiences, learning conceptions, and learning approaches influence their learning outcomes (Dahlgren & Marton 1978, Crawford, Gordon, Nichols & Prosser 1998). Literature reveals further that it is the prior learning experiences that greatly shape students' conceptions of learning. The synthesis by Entwistle, McCune, and Walker (2001) indicates that the meanings the students attach to the concept of learning are derived from the cumulative effects of previous educational and other experiences.

Watkins (2001) says that the ways students learn are a function of how they perceive their learning tasks and their environment. This position is explained in Entwistle's (2000) representation of the influences on students' approaches to study and learning. Accordingly, if students think of learning as reproduction of information, they will use surface learning approaches. As a result, their understanding of the subject matter is superficial. On the other hand, if they perceive learning as a transformation of knowledge, they will adopt deep learning approaches leading to understanding of the topic.

Purdie, Hattie and Douglas (1996) found a main effect for the "understanding" conception of learning but did not show any association between the conception of learning as memorization and total strategy use. The results were interpreted as suggesting that students who are more proactive in their learning are more likely to think of learning as a complex cognitive process than as a process of collecting information. These results confirm the findings of Van Rossum and Schenk (1984) showing an association between a constructive learning conception and the use of deep-level approach and relatively high quality learning outcomes.

An important prerequisite of both students and teachers for development is their personal attitudes and characteristics. They are affected by life stages, especially by significant experiences. Understanding and interpreting learning experiences gives them a deeper insight of themselves as learners. (cf. Syrjälä et al.2002). There are many reasons to suppose that personal triggers predispose a learner to become open for changes and learning new things. Reflected experiences tend to increase motivation and enhance self understanding and self-esteem. (Ruohotie 1996.)

Although studies conducted provide support to the importance of prior learning experiences, little is known about the preconceptions of second or third career teacher students and the role of these preconceptions in the process of teacher studies. This chapter concentrates in studying (1) the life histories of teacher students as experience factors, (2) the cognitive learning styles as factors of approach to information processing and self knowledge, and (3) the personal learning concepts, philosophies of teaching as studied and reflected. The study follows the new paradigm for research, in which a teacher and a student teacher are seen equally as learners. The gaining of expertise in the teaching profession is a lifelong process. The prerequisites of becoming a good teacher are the ability to reflect and to assess significant experiences and to reconstruct personal beliefs and practices as a result of this reflection (Kohonen & Niemi 1995, Niemi 1996).

4.1.2 Learning Histories

Becoming conscious of the stored experiences of teaching and learning is vitally important in building theoretical and practical ways to approach teaching. Personally significant learning experiences can be either from formal school education or from outside school, whether incidents – not produced on purpose – or episodes/ events which were part of a progressive series of happenings. When the experience is reflected, the person gives some value or meaning to it. Thus it appears to be an experience which has had influence on the person's development, his attitudes or self image.

It seems to be problematic to differentiate clearly between a critical incident and critical event/ episode. A critical incident tends to be trivial and small while an episode or event can include one or more incidents or be linked to a complex set of circumstances. The episodes can represent formal practices, but they can also be informal series of incidents.

Significant learning experiences can be plain or peak experiences, sometimes valley-like experiences. The plain experience refers to inner balance and peace of mind. Some experiences are related to growth, to doing something intensively (flow), to critical events in life or to transition phases. (Csikszentmihalyi 1997.) Informal incidents or episodes during school years as well as those in later years

of life can appear significant. Even the working atmosphere of the school can be linked to these experiences.

Personal development is often linked to emotional development. It can be seen as essential to 'imaginative learning' (Egan 1992). But it can also enhance other forms of learning. The emotional engagement and how it contributes to personal and social development is perhaps the best consequence of significant or critical events (Nias 1991).

On the realistic level of experiencing there appear phenomena which happen in a person's conscious mind, for instance the images of significant learning experiences. The abstract and ideal meanings of those learning experiences appear on the idealistic level. Because of this ideal meaning, it is possible for a person to regard the meaning of a learning experience differently at different times, in different contexts and different emotional situations. This means that one and the same phenomenon can have different noetic representations in different phases of a person's life history (Silkelä 1999). It means that people "create" their life histories by giving meanings and interpreting the events. What is interesting is the interpretations, not the incidents as such, because the ways people see their experiences are connected to their emotions and contribute to their self concepts.

In the following, the findings of the present study are described, discussed and compared to responding theories and results in the previous studies.

Critical incidents and episodes seem to be the more influential, the earlier they occur. For instance the memories from the earliest years of going to school or before going to school are deep. They often refer to learning a skill or "opening a new door", or, if they are negative memories, they refer to threat or feeling unsuccessful. The most significant in the positive memories of incidents is the feeling of flash: everything seemed clear:

My earliest experiences of learning are from the age of three. Then my father bought me skates...I watched boys skating through the kitchen window. Somehow I understood the basic techniques by watching. The rest had to be practised myself. I was enthusiastic after the first time on the ice. (JA)

I was 4 years old. ... I was looking at the serial pictures. Uncommonly, the text was printed with capital letters. I recognised all of them. I understood the interjections AI and OI. In one of the pictures Dennis was giving a bunch of flowers to his mother. There was the word KUKKA (flower). In my technique I read it KOOUUKOOKOOAA. The next word was JA (and), and I read JIIAA. When looking at those two words I suddenly realized – and I even today, 40 years afterwards, remember that strong feeling (I understand why a symbol of realization is a lamp) that if I say the letters very quickly, the result is "ja", and it sounded nearly right. I tried the method to "kukka", and it worked! (AI)

During the first two school years ... teaching was based on discipline and order. The teacher told even what colours you were allowed to use when colouring your drawings. ... During my second year I remember walking to school six kilometres, since the snow prevented vehicles. I was late for school and was punished for that. (AH)

The term 'critical' means here 'crucial, key, momentous' rather than problematic. If the word 'exceptional' were used to avoid possible confusion over 'critical', it would describe them as if they were out of ordinary happenings. Not all extraordinary happenings, however, are critical in their consequences.

Critical events refer to memories of integrated and focused programmes of educational activities which may last from a number of weeks to over a year. They may be periods of themes, projects or topics, either formal or informal, though by no means all of these are critical in their effects. They cover a multitude of different kinds of activities, either positive or negative. The latter are equivalent of the 'counter incidents' (cf. Sikes, Measor and Woods 1985), and can have serious personal or educationally retrogressive consequences. The following is an example of a critical period which had influence on the preferred ways of learning even up to the present day:

The best experience of learning is from the time of my vocational education. We were studying for the tests and exams in a group of three. ... I suggested studying together. So we were reading, talking and asking each other questions. ... One of us had never succeeded in an exam as well before. ... Now that I will soon be a qualified vocational teacher I have noticed that I am eager to use cooperative learning methods. Perhaps it refers to my early experience of successful learning together. (AB)

Critical events can offer a boost to students' personal development. This is especially marked in relation to, firstly, attitude to learning, as is the case above. Increased, or newly found confidence in oneself is frequently mentioned, as is motivation for learning. There is enhanced disposition and skill in listening to others, and being listened to. Secondly, there are several reports of self-discovery, a realization of abilities and interests, and a 'coming-out' of a newly found self which might coincide with a 'blending-in' to the culture of a group hitherto impenetrable. (cf Woods 1993.)

When I started the senior secondary school, I started to work and earn money in the evenings. I started to feel my life more pleasant than earlier. I had been bullied in lower classes, but now it was over. ... I took a grown-up attitude to going to school, started to prepare myself carefully for the exams. ... I got good marks. ... Those three years in the senior secondary school have been one of the best times in my life. (AI)

Vocational school changed totally my conception of myself as the learner of mathematics. I noticed that I was good at mathematics. Since then I have liked mathematics and I have been very motivated to study it. (TK)

What, literally, makes these events/ episodes critical? First, they promote learners' development in uncommon ways (cf. McLaren 1986). They encourage a learner to make a leap forward to discover new things about the self or to be changed radically. People can be trained in certain skills without it affecting them as persons. In educating people we have in mind 'a transformation of how they see and understand the world and themselves within that world' (Pring 1985, 130; cf. Carr 1989). It is this kind of holistic change that is involved here. The next example is of an incident which turns into a critical event in the course of time:

I had a great flow experience in secondary school, when I realized that the text to be read is not necessarily traditional text, but it can also be figures. Mathematics became more and more difficult in the course of years, and I had never given much thought to it, since I considered figures unreadable. One evening it happened that I opened the world of figures like a book for reading, and started to study figures like letters. I still remember the feeling which I had when I succeeded in complicated mathematical functions. I learnt to read figures! (TK-K)

A critical event/episode is not just a matter of cognition. It involves the whole person, whether a student or teacher. Both feel strong motivation, identification and emotional involvement. Through teacher initiatives, students are stimulated and challenged by the activities provided. This promotes real learning. It also leaves powerful, often positive memories to the learner.

In elementary school I enjoyed going to school, learning new things and skills. Now, afterwards pondered, I underline the significance of a teacher in my learning process. She was an enthusiastic teacher and she took care of us all and our learning impartially, whether we were fast or slow learners. Obviously she wanted every little pupil to get the necessary basic knowledge which would be widened later on. (TK-K)

Critical episodes/ events and incidents usually appear in critical periods of life like situations of choice and changes. Personally significant learning experiences can themselves also mean change or lead to situations of choice in life history (cf. Silkelä 1999,133). This is the case often when choosing a future career:

My parents ...and also the teachers recommended going to the senior secondary school. I, however, made my own decision and sent my application to a hotel, tourism and food processing institute... I moved to another locality to study and lived in the student housing there. My relatives were sure that I would not be successful, since my parents could not control my behaviour. I did, however, well, for I was ambitious and wanted to show off. ... After a year I transformed to a more demanding line ... and I graduated twice, both times I was the best and was granted a prize. (SK)

Whitehead (in Gershman 1988) argues that students learn in a rhythm of three stages: 1) romance with free adventure, experimentation and discovery, 2) precision, a stage of detailed knowledge, and 3) freedom with the applications of new knowledge. Thus a critical episode/ event proceeds like a qualitative research study where initial conceptions prompt data collection which is then analysed. This prompts more data collection, which fills out and refines ideas:

From work life to university. What happened then? Learning developed a lot during those four and a half years which I spent studying. I wouldn't like to give off any day from the time. In the beginning it was difficult to study. I tried the earlier memorization techniques. They didn't work at all. I had to learn a new way to figure things out. I learnt to use successful learning strategies. My motivation was high. Studying was a pleasure. (JA)

Critical incidents and events will also occur *in teacher careers*. The role of the teacher implies also the role of the learner. Unlike critical incidents, critical events are to a certain degree intended, planned and controlled. They, however, include elements that are unforeseen and unpredictable, and nobody knows the consequences exactly. Momentarily a teacher can also have a flash of being a creative artist and achieving the 'peak experience' or 'flow experience' of which Cziksztmihalyi writes (1997, 110).

Critical incidents in teacher careers have been observed (Sikes, Measor and Woods 1985, Sparkes 1988) to be "highly charged moments and episodes that have enormous consequences for personal change and development" (Sikes et al 1985, 230). They are flash-points that illuminate in an electrifying instant some key problematic aspect or aspects of the teacher's role, and which contain, in the same instant, the solution. There may be a high proportion of such incidents during critical periods, such as one's initiation into teaching. They are key factors in the socialization of teachers and the process of establishment (cf. Ball 1980) in the classroom. Critical events are a related phenomenon. They lie between the flash-point incidents and the career-phase periods as appears in the following quotation:

(Now that I teach in the technical faculty of university I have learnt many things.) Two winters ago I taught information and communication techniques. Some splendid achievements of the students gave a moment of bright insight to me I think that it was me who learnt most in that course. That kind of peak experiences have occurred even more often since then. (AA)

Critical incidents are not things which exist independently of an observer and are awaiting discovery. Instead, they are created. Incidents happen, but critical incidents are "produced by the way we look at a situation: a critical incident is an interpretation of the significance of an event. To take something as a critical incident is a value judgement we make, and the basis of the judgement is the significance we attach to the meaning of the incident". (Tripp 1993, 8.)

Among the benefits that accrue from such activities are a greater understanding of one's beliefs and values and generating of a new knowledge. In this the reflective practitioner is both an actor in a drama and a critic, watching and analysing the performance (Osterman & Kottkamp 2004). The research material gives reason to interpret that significant learning incidents, though important for the rational skills, are even more important for emotional competencies. They, again, are more important in contributing to professional development than pure intellect, knowledge and expertise. The promotion of reflectivity is dependent on the emotional skills required in building and maintaining effective partnerships (Goleman 1999).

4.1.3 Learning Styles for Self-understanding

We are born with our learning styles. The influence of early upbringing is, still, great on us according to many a research. The styles mean preferred modes of receiving and processing information. They are supposed to change mainly through experiences and ageing. Learning strategies are, instead, the policy of approaching the learning tasks, choosing the methods of approaching, monitoring the processing and evaluating one's action and achievements. Learning strategies can be taught to the students. The styles are more slowly changed.

For an experience to become meaningful, people have to think about it. Learning experiences, in addition to events and incidents, can also include experiences of learning styles variance which colours the experience. After familiarizing with the learning styles and becoming aware of one's own learning style, it is enlightening for a student teacher to step back and ponder one's learning experiences to extract from them some knowledge or meaning relevant to the present understanding of learning styles. According to Boud, Keogh and Walter (1985, 19) "reflection is an important human activity in which people recapture their experience, think about it, mull it over and evaluate it".

For a teacher it is important to know some of the many classifications of learning styles and strategies which are commonly known and understand the variety of styles, strategies and preferences among his/her students. It is also important for a teacher to make a self analysis. Understanding one's learning style characteristics helps both the teacher in his/her job and the learners to understand their learning histories. The past and the present are interacting towards the future.

People who are predominantly rational want to proceed logically from point A to point B in their acquiring new information. Empirical people need to have evidence that the new idea works in practice. Metaphoric people want to link the new information to their previous experiences by discussing it with peers to make the acquisition of new information effective. These information processing

preferences are partly harmonious with different disciplines: rational is close to mathematics and other logical fields, empirical to natural sciences and sociology which rely on empirical experimentation, and metaphoric to humanistic fields of study. This instinctive tendency towards certain subjects in schools possibly makes them “easier” for certain students and even leads in choosing their future careers.

Further, we are governed either by the right or the left domain of the brain. It results either in being analytic or holistic in accepting and processing information. Or we can use both domains of the brain, which is an asset. There are several classifications of learning styles which are based on the idea of the hemispheric domains of the brain.

Kolb’s experiential learning cycle (Kolb 1984) has given reason to build a learning style inventory on the basis of this cycle. The learner can be either an active experimenter or an attentive observer. He can have the tendency either to logical reasoning and conceptualising or to practical implementation. Further, this model indicates the typical conditions for each of the forms of knowledge: assimilative, convergent, accommodative and divergent knowledge (see 2.3.2).

Each of us has certain perceptual strengths, or preferred modes of receiving and processing information through sensory channels. Some of us are visually oriented, some are auditory, some are kinaesthetic and some are tactual. Most of us process information in all modes but learn best in one or two preferred modes.

According to the tests I am an auditive-visual learner...I learn by seeing, hearing and talking. When I study, ...I organise the matters by talking to myself. .. In university studies ...I considered lectures a very suitable way for me to learn. (SF)

My learning style is very strongly visual. ... During my school times I remember writing down notes off the transparencies and from the teacher’s lecture, although the material would be given as hand-outs. If I only listened to the teacher’s *specchlecture*, I didn’t remember the next day anything that was talked about ... My own notes made the things easier to figure out and connect to each other... I have always been good at understanding maps and other visual guides. ... My second preference is kinaesthetic style. When I was younger and I had to learn something from a book, I started moving around in the room, or I went out jogging ... and thought of what I had just read about. (HH-S)

Besides perceptual preferences, learning styles can be approached from other points of view, as was already stated. In processing new information, the division of teacher students into rational, empirical and metaphoric (or noetic) styles was easily observed:

Among the styles in information processing I feel the empirical style as my own. In it we make observations ... through our senses. Information is concrete by nature. I always want to have concrete examples along the theories. In this way I

can understand facts and wholes more easily. I found an article on learning styles in the net, and it connected empirical style with focusing, analytical observations, and intolerance of unrealistic things which I especially experience as my own features. I find it difficult to accept unrealistic ideas and thoughts. This is what causes arguments between me and my husband. Empirical style is thus based on observations and experiments. (TK)

Further, there are several examples of learning styles which are based on the idea of the hemispheric domains of the brain.

I have always liked reading, studying languages in the traditional way and mathematical subjects, so I think that I am governed by the left hemisphere. I am not artistically talented or creative. ...Further, I consider myself analytic more than holistic. At home in my cupboard I have a certain system and order how the sheets will be used. I think it is very simple and practical, but my husband has needed over five years to learn it, and he is not fully trained in it even now. (HH)

According to Kolb's experiential learning inventory (1984) the learner appears to be either an active experimenter or an attentive observer. He can have tendency either to logical reasoning and conceptualising or to practical implementation.

According to the self inventory of experiential learning I have as strong a tendency to logical reasoning as to attentive observing. I recognise these features in myself very well. ... It is characteristic of me to analyse the things in depth and confirm the results to a maximal degree. All kinds of logicalness and organisation can be seen in my actions. ... If for instance the lecturer handles the things atomically or in a serialistic way by gathering the whole out of small pieces, I usually find it difficult to figure out the matter in the right way.... Strong systematism is also evident in my studies. I plan timetables and periods and divide the task into smaller pieces which are easier to learn. (HH-S)

There are several other classifications of learning styles and corresponding inventories. Recognising learning styles is a matter which should be approached from many directions to avoid too narrow a picture. People are complex creatures, and their developmental processes are going on all the time.

I started to understand more clearly that there is not one right or wrong opinion or absolute source of information, but life is full of small details, and people experience things in different ways. I started to become more interested in different points of view and experiences that people had. I enjoyed interesting discussions in which people talked about various topics and disagreed. (TK-K)

Understanding their learning style characteristics helps both the teachers in their jobs and the learners to interpret their learning histories. The past and the present participate in the interpretations of experiences. Many adult students have thought of being slow learners e.g. in languages or mathematics or weak starters in their early years of learning. The conception may have restricted their

choices later in their lives. They feel relieved when they understand the situations from a new point of view. As prospective teachers the experiences, good or bad, have to be recognised, reflected and interpreted, since if not reflected, they can influence their attitudes to students and learning in unexpected ways. Reflecting on the role of learning styles adds to the teacher's self-understanding.

4.1.4 Personal Conceptions of Learning

Research shows that students who adopt a deeper approach to their learning are more likely to have more meaningful learning outcomes than students who do not (Marton, Hounsell and Entwistle 1997, Biggs 1999, Ramsden 1992). In order to address the differences between and relationships among knowledge, beliefs, belief systems, and belief clusters learning conceptions should be made conscious. The concept represents different categories of ideas held by teachers behind their descriptions of how educational items are experienced. Thus, conceptions act as a framework through which a teacher views, interprets and interacts with the teaching environment (Marton 1981). The structure of teachers' conceptions is not uniform and simple, they appear to be interconnected.

For student teachers it is important to become aware of their conceptions of learning, because there is evidence of the fact that teachers' conceptions of teaching, learning and curricula influence strongly on their work: how they teach, what students learn or achieve, and how learning is evaluated (Calderhead 1996). Thus all pedagogical acts, including teachers' perceptions and evaluations of student behaviour and performance are affected by the conceptions and beliefs the teachers have about the act of teaching, the process and purpose of assessment and about the nature of learning. It is critical for professional development that the conceptions teachers have and the relationship of the conceptions among and between each other are made explicit and visible.

Again, as in earlier paragraphs, the students' prior learning experiences are significant in shaping their learning conceptions and predisposing them to use certain approaches. Because of having unconscious beliefs, it is important for learners and teachers to make implicit conceptions explicit, to conceptualise experiences and create a theoretical framework in which to express their views.

A model for understanding how teachers / student teachers conceive of learning is the surface-deep continuum (e.g. Entwistle 1997, Biggs 1987, Marton & Säljö 1976). A similar continuum appears in student teachers' writings. They tell of the various ways they had met in their learning histories. The surface approaches or conceptions include:

- a) remembering things
- b) getting facts or details, and
- c) applying information.

In the secondary school ... being successful was remembering by heart. ... I don't remember any positive learning experience from that time. School succeeded in killing my joy of learning. Since that time in my mind there *is hovering* a sense of worthlessness, feeling stupid. This feeling afflicts me sometimes even today. (JA)

...difficulties in directing learning. ... I master the wholes but if they must be learnt for the exam, it will become problematic. I get nervous, I feel I can't learn the things by heart so that I can answer the questions, neither do I understand the ideas. So this is a place for great development. ...On the other hand practical work, finding information and examining it, is interesting and offers no difficulties. (PH)

In contrast, the 'deep' approach to learning was explained so that learning was experienced as a qualitative change in one's way of understanding some aspect of reality. The deep views included:

- d) understanding new material for oneself without reference to rewards
- e) perceiving or understanding things in a different or more meaningful way, and
- f) developing or changing a person.

The following example shows that the deep approach has to be practised, learnt and understood. We are not born with that skill, but after a critical experience there is a possibility of a real change:

I went through every homework first after which I entered deeply into the themes. After the deep reading I started to move or walk in the room telling to myself silently what the question was about in my homework. ... After graduating from the senior high school I started to prepare for the entrance examinations of the juridical faculty. ... I felt very disappointed after learning that I had nearly reached the demanded level. Afterwards ... I think that the tasks which needed applications and analyses were not successful. They needed real deep processing of information. My understanding of the written text stayed on too superficial a level to be applied in practical problem solving situations. (HH-S)

Another, similar model of learning is presented by Biggs (1987). It also describes two major kinds of learning purposes: surface purposes involving accurate reproduction of material and deep purposes emphasising making meaningful connections. Tendencies to surface or deep processing seem to be associated with types of learning strategies. Gaining qualifications refers only to the strategies that aim to reproduce essential information. Learners who are interested in understanding the material focus on optimizing their study effort.

The negative impact on teachers' and students' emphasis on surface learning approaches was noted by Brown (2003). The difficulty is that learning cannot be broken down into fixed sequences of steps that consistently lead to the desired result. On the other hand, just as surface approaches alone cannot ensure that learning will take place, deep approaches alone cannot guarantee learning.

Learning at all levels requires active mental processing of information, repetition, practice and memorization (Howe 1998).

The student teachers examined were well aware of different theories of behaviouristic, cognitive and humanistic approaches to learning. They were all taught in behaviouristic methods in school and had respective learning experiences. They understood the changes of learning theories from transmission/transference model to transformation. They all expressed constructivism, experiential learning or humanistic-constructivist approach as their own views of learning. Some of them also saw that behaviouristic ways of learning, however, can appear as parts of learning situations.

Traditional school learning serves the aim badly. Traditionally we think that transferring knowledge is primary and takes place before learning. Teaching that is separated from the contexts of information produces inert knowledge. This kind of knowledge can be used in school contexts as in tests and exams, but it can't be applied to the complicated problem solving situations of working life or everyday life...According to constructivist conception of learning knowledge is not transferred, but a learner constructs it himself: he elicits and interprets information, constitutes it on the basis of his earlier knowledge and links to it. Through his experiences he "builds up" a picture of the world in which he lives, and of himself as a part of this world. Constructivist conception emphasizes also emotions as an inseparable part of learning. (LH)

The school does not support sufficiently the pupils' individual ways of dealing with things. Teaching should leave much more space and room than today for the individual needs, learning styles and personalities of pupils. On the contrary, the school system favours mechanical behaviour and producing uniform results. (MH)

All student teachers described their learning in terms of knowledge acquisition. Some of them also emphasised the ability to apply knowledge, the development of critical thinking skills and the importance of the social context in learning.

Although the amount of information has increased, the real experiences of young people have not grown respectively. Instead, the second hand experiences have increased, and they create the illusion of a generation which knows a lot and which needs no "bringing up". (LH)

4.1.5 Summary of Significant Experiences and Increasing Personal Awareness

The student teachers' texts approach the question of self-understanding from three viewpoints: that of recognizing significant learning experiences and learning styles as well as of explicating personal learning conceptions. The learning styles are usually connected with the experiences of finding

explanations, of widening the self-image of the writer or of directing the planning of the present learning tasks or even of approaching everyday chores.

The experiences are most often presented in the form and level of descriptions. Some writers reflect on the practical consequences of the incidents or events. It is the second level of reflection. On the third level, reflection is manifested in conceptualization which means considering the experiences from the viewpoint of educational theories, finding proper literature for the occasion of writing or availing of the previous theoretical knowledge. This proactive, third level appears only in a small minority of the reports.

Of learning approaches, or of learning conceptions the writers have plenty of memories and they present views which pertain to behaviouristic way of teaching and learning. They write about:

1) memorization and unclear study directions which both refer to the surface approach of learning.

The student teachers also tell about

2) feelings of confidence in their studies and/ or

3) desire to achieve higher in their studies. For better achievements they succeeded in

4) using evidence to arrive at conclusions. This process seems to have made a deep impression on their minds. When becoming more mature in their ways of acquiring information they learnt

5) strategies of relating and connecting ideas which lead to growing understanding.

Out of these, points 2-5 are deep approaches to information processing. They do not seem to appear among young learners, i.e. in the memories of the first school years, but along the developing ability of critical thinking the memories of deep approaches increase.

To conclude the levels of self-awareness in the second or third career student teachers' reflective reports, it is notable that the ability to reflect increases from the superficial descriptions towards understanding the currents under the surface. Simultaneously, the self-image develops. The following table illustrates the dealing with the learning experiences at the very beginning of teacher education and at the end of the beginning phase. One person's quotations are presented in a linear direction.

Table 2. Levels of reflection in three student teacher reports. 1=AB, 2=JA, 3=TK.

1 Descriptive level	2 Pragmatic level	3 Proactive level
<p>1. The best experience of learning is from the time of my vocational education. We were studying for the tests and exams in a group of three... I suggested studying together. So we were reading, talking and asking each other questions. One of us had never succeeded in an exam equally well before. AB</p>	<p>Now that I will soon be a qualified vocational teacher I have noticed that I am eager to use cooperative learning methods. ... During teacher education I have learnt much of cooperative learning and become interested in it. In the future I think I will continue the same line, but... develop more methods. I wonder what new insights ICT and satellites bring with them AB</p>	-
<p>2. From working life to university. What happened then? Learning developed a lot during those four and a half years which I spent studying. I wouldn't like to give off any day from the time. In the beginning it was difficult to study. I tried earlier memorization techniques. They didn't work at all. JA</p>	<p>I had to learn a new way to figure things out . I learnt to use successful learning strategies. My motivation was high. JA</p>	<p>I believe that my motivation to develop will influence positively on my work as a teacher. I experience teaching as challenging and giving. You cannot limit development. JA</p>
<p>3 Among the styles in information processing I feel the empirical style as my own. In it we make observations ... through our senses. Information is concrete by nature. TK</p>	<p>I always want to have concrete examples along the theories. TK</p>	<p>I found an article of learning styles in the net, and it connected empirical style with focusing, analytical observations, and intolerance of unrealistic ideas and thoughts. TK</p>

The student teachers' dimensions of understanding the conceptions of learning are observed through their critical learning experiences and understanding learning styles. The results show that although they are adult second or third career student teachers, they are still beginners as teachers. The dimensions of learning conceptions appear to be:

- 1) Intake of information as learning activity where the direction is from the teacher to the students. This kind of view appears mostly at the beginning of education or is based on early school memories, but is changed during teacher education. Examples of this kind are found either in the documents of school memories, or expressed orally in seminar discussions.
- 2) Studying in cooperation. It means sharing with others, refining the ideas and widening perspectives together in a team, group or collaboration with others (example 1 above);
- 3) Developing the conception of learning is understood as the development of perspective: in the course of time you will find an ever deeper approach to things; (examples 2 and 3 above).

Constructivism seemed to be the most attractive way of approaching teaching. Many student teachers considered experiential learning or socio-constructivism one of the most suitable ways to conceive vocational teaching. When teaching some practical items they also found behaviouristic approaches useful, in a limited usage. What they all were unanimous in was the need for mastering various teaching methods to apply to different learners. Their scope of seeing different learners was widened: they were not any more only the problem cases in school, but offered challenge to teacher and might be very rewarding.

4.2 Knowledge of Learners and Situations

Teachers as professionals have knowledge in several highly differentiated domains (Tillema, 1995, Shulman 1987). For instance, the knowledge bases a teacher draws on, when planning a scheme of work and carrying it out, range from knowledge about learners, curriculum, teaching methods and subject matter to school practices (cf. Calderhead, 1987). Shulman (1987) has described this genre of knowledge with the concept of pedagogical content knowledge. In a teacher's practice, different areas of knowledge cannot be distinguished; they are interwoven and orchestrated to inform practice. To represent subject matter knowledge or a teaching method as a single, discrete entity, for instance, is an oversimplification, if the context is not paid attention to.

Although the significance of practical knowledge for teachers has been recognised since the end of the 70's, it has not traditionally been given enough attention in teacher education programs; it remains still largely uncontrollable, unpredictable knowledge that teachers learn during their practice periods, and later in their work places, based on their own experiences, via trial-and-error. These features clearly point to informal learning and to the experiential and private nature of teacher knowledge. (Lauriala 1997.)

As to theoretical knowledge, the education of all professionals has to some degree a theory-practice dilemma or gap. This dilemma seems to be almost an eternal question in the teaching profession. To a great extent teacher education practical and theoretical courses have been separate. Especially most in-service courses have focussed on theoretical knowledge, which has led to the fact that teachers have regarded these courses as irrelevant to them, and distant from their daily concerns, needs and classrooms. Recently new approaches in teacher research have aided teachers' personal, practical knowledge to become unfolded and spoken of (for instance in the form of teacher stories of their learning histories and reflected classroom experiences). In teacher research this in turn has even led to overemphasizing personal, practical knowledge at the expense of "old" theories, for instance of sociology, psychology or educational science. No matter how important it is to illuminate teachers' thoughts and listen to their voices, arguments for personal, practical knowledge should not lead to reducing teacher access to wider understanding of schools as cultural systems and institutions. Hence, understanding cultural and social forces as well as "old" theories are needed in the development of professionals.

Becoming conscious of their previous learning experiences and their roles as mediators of pedagogical cultures, the student teachers were supposed to be able to orient to a change, a new culture of teaching, generally deviant from that which they had implicit in their minds according to the most learning history reports, and to understand the new approaches to the norms, roles and practices of teaching. After writing about their learning histories, recognising their styles as learners and explicating their personal learning conceptions, the first teaching practice period was organised in order to become familiar with the learners and learning situations. According to Shulman (1987), the knowledge of learners and learning environments is one of the components of pedagogical content knowledge.

The most interesting things take place on the outskirts of different phenomena (Mäenpää 1997). The teacher should be able to notice weak signals and either weaken or strengthen them. A parallel phenomenon to sensitizing unseen but existing things is the arts: poetry, painting and music are examples of making implicit explicit. Noticing weak signals is usually something that develops during the years of teaching experience, and the result is mostly implicit, the so called tacit knowledge. To become sensitive to weak signals the student teachers as well as teachers in general need networking with colleagues and community and acquainting with the matters relevant to education. Due to the importance of being sensitive to the signals of the learning environment, the student teachers were introduced to this dimension of school culture. They were also encouraged to networking with each other and sharing the results of observations to widen their individual scopes of understanding.

Practical knowledge refers to personal understanding, which the teacher has developed in everyday teaching situations. It is experiential knowledge, and

directly related to action, arising from action and closely related to action, as well as oriented towards action. (cf. Elbaz, 1983). Teachers' practical knowledge does not refer to the traditional meaning of the "practical", neither to the application of theory (van Manen 1999). It is qualitatively different from academic subject matter or formal theoretical knowledge. It refers to the form of knowledge that cannot necessarily be captured in words (ibid.). It refers to the phenomenon of embodiment in human action; the body knows how to do things, and it enables our embodied activities (ibid., 69-70). Knowledge that resides in our practices is not directly accessible, observable, measurable or definable. Neither is it possible to make a clear distinction between knowledge and skills.

Since practical knowledge is highly context-dependent situational knowledge, a pedagogically tactful teacher is a master of situations, alert and receptive to situational cues which inform her, for instance, about students' emotional or cognitive needs or of the atmosphere in the class. This highly adaptive nature of teacher knowledge further complicates the dissemination of teacher knowledge in any fixed, formal or static mode: i.e. in the forms of receipts, rules or methods.

Due to its practical nature, and lack of linguistic form, teacher knowledge has been weakly recognised and weakly valued. Recently, its value has, however, grown alongside with the new understanding of the nature of this knowledge. It has been emphasized that what teachers express in their action unfolds much more depth, nuances, and wisdom than their talk. Their knowledge is essentially knowledge-in-action, and can best be learned in and through action. The student teachers' experiences in general describe how pedagogically essential issues, such as classroom management or ethos do not just happen, they have to be worked for, constructed and maintained.

Relating conceptual and situational knowledge will also aid in crossing individual and situational experiences and transferring the knowledge acquired in the teaching practice situation to other situations, i.e. desituating the knowledge (Hatano & Inagaki, 1992). The importance of theoretical knowledge is in the fact that it provides explanations and aids teachers to see everyday situations from a wider perspective. It offers interpretative tools. For this reason the student teachers were asked to acquaint themselves with relevant theoretical literature before their observation tasks.

In the following table the basic characteristics of different types of teacher knowledge are summarized. Cultural and practical knowledge are both mainly implicit, while theoretical is explicit. Cultural knowledge is collective, practical knowledge individual and theoretical knowledge general. While practical knowledge is contextual, cultural is cross-contextual and theoretical de-contextual.

Table 3. Characteristics of different types of teacher knowledge (Lauriala 2004, 30).

Cultural knowledge	Practical knowledge	Theoretical knowledge
implicit, hidden	implicit, hidden, tacit	explicit
unspoken	unspoken, partly linguistically in-expressible	linguistically expressible
informal	informal	formal
collective, socially achieved	individual, experiential	general, abstract
interpersonal	personal	impersonal
partly cross-contextual, partly contextual	contextual, situational	de-contextual
embedded in practices, knowledge and skills inseparable	embedded in practices, knowledge and skills inseparable	separate from practice, knowledge and skills separate
unsystematic, value-bound	uncumulated, episodic, tendency towards entity, personal theory	cumulated, systematic, hierarchical

Teacher learning and development are here understood as contextual, an inseparable part of activity, context and culture. Development of knowledge is related to one's action in context (cf. Silbereisen & Eyferth 1986; Zeichner & Gore 1990). Different contexts pose different constraints as well as possibilities for teacher and student action. Different classroom organisations invite different kinds of teacher roles and action, e.g. autonomous learning of students offers new opportunities for professional learning to the teacher.

4.2.1 The Organisation of the Observation Task

Observing the learners and learning situations at the beginning of teaching practice, though meaningful in all cases, is even more meaningful, if it can be carried out among the same students and groups in which the actual classroom practice will take place. This is because knowing the target group is the prerequisite of successful teaching.

The student teachers were made familiar with data collecting methods, data analysing, making conclusions and assessing. All the students to be observed were vocational secondary students (aged 16-25), vocational academic (polytechnic) students (aged 19-30) or adult education students.

Preparation. To prepare oneself for the observation period, the student teacher had to get acquainted with different methods of collecting observation data of the students, possibly also by interviewing them of their backgrounds or of attitudes. The research methods of mainly case study or action research were taught to

student teachers. The process was supposed to be both planned and controlled as well as to be flexible and reactive to unexpected incidents. Planning included thus the choice of the theme and a valid data collecting method. Familiarization with the theoretical literature on the chosen themes was expected.

The most common misunderstanding is that the novice teacher thinks of going to the classroom observation without preparation and only watching what happens there. However, our perception is not capable of registering more than a small part of multidimensional and simultaneous incidents. Secondly, what remains in our memory without systematic observation is highly dependent on the personal qualities and background of the observer. They influence the interpretations, too. And, thirdly, it is common that only the features that contributed to the interpretations are the ones which will be remembered. Thus, if one wants to observe learner activity, the first thing is to sketch how it is revealed in the observable behaviour. This definition limits the point of view, since all important things are not observable by behaviour only. To complete the observations, written material can also be used, for instance questionnaires to the learners. If the observation task is demanding, the target group can be only a few learners. Or the same observation topic can be shared by a group of student teachers. They may choose either systematic or episodic observation and prepare observation charts.

Actual observation. The length of observation period is at least two working days, 12-16 lessons. Using two days makes it possible to alter the data collecting method, if the original does not work. This represents the different cycles of action research. The data is then analysed and the results are recorded. Only after this does the transition from “facts to fiction” take place, i.e. the observer’s interpretations and reflection. Features which were not directly involved in the observation plan but were noticed can now be taken into closer examination if they explain the results. This kind of observation task seems to motivate many students even to the extent that they want to go on with the same thematic problems in their later research tasks.

Report. The report tells of the aims, methods, results and reflection. The last takes place under the title “What did I learn during observation?” The literature references must also be given. The recommended length of the report is 5 pages. Copies of the report should be handed out to the reflection seminar participants. Transparencies and possibly other illustrative material are prepared. In writing the report the student teachers are to remember that they were observing primarily the students, not the teacher, although the action of the teacher is seen behind the many occurrences in the classrooms.

Individual reflection. Individual reflection is recorded in learning journals. The journals give additional information on situational factors and the observer’s views. Through reflection the interpretations and understanding of the situations can be deepened. Individual reflection combines the present and the past. The observer’s own school experiences sometimes come to the surface and may be very strong. Reflecting on one’s own critical incidents is connected with the

observation task in a more or less conscious way. Becoming conscious should be encouraged, since, if remained implicit, many of the earlier experiences of the interactive situations, unrevealed to conscious memory, can direct the teacher to unpredictable decisions.

Collective reflection. In the publication of the report, each observer at a time has the floor. He/she is allowed to tell of the notions and conclusions without interruptions from the audience. Everyone in their turn acts as an expert of the material presented. After this comes the verbal sharing of the experiences. The atmosphere should not allow “besser-wissers”; instead, every one’s opinions are valuable and feelings true. The chair of the group dialogue must be acquainted with the rules of collective reflection. (Senge 1990.) If successful, the result will be more than the sum of its parts: the purpose is to learn of the others’ experiences, aiming at a deeper understanding of things than could be reached through individual reflection.

The main thing is that the participants in the collective dialogue act coherently (cf. Bohm 1996) and try to sensitize to the described, even conflicting views. They can, in fact, help each other see the incongruent in their thinking. They can also share the feelings that appear and in this way ease each other’s loads. Thus collective thinking tends to a greater consistency and can grow bigger than the sum of its parts.

To be capable of reflecting one must first have experiences, notes and documents on which reflection and evaluation will be based. The reflection aiming at the knowledge of learners cannot thus be only more or less intensive observations without efforts to document the findings. Collecting data should also be systematic, precise and concentrated. Only after documentation and studying them one can ask: “What seemed to happen in the class? What happened really? What was the real participation of the learners in relation to what was expected? How well directed was the organization and action in relation to the aims and presumptions?” Questions naturally vary according to the features observed. One has, however, to remember to keep the data collecting methods, the aims and the conclusions in line. Concerning the conclusions, reflection will always have to be completed by the teacher’s /the student teacher’s self-assessment and practical suggestions for action. They are the more comprehensive, the more aware the observer is of the interaction, group dynamics and student communities.

By completing the systematic learner observation task the student teacher can collect second-hand experiences of controlling the group. When writing down the observed incidents and events, he/she collects data for reflection. If he/she witnesses learners’ unanticipated or unexpected behaviour, he/she first makes the phenomenon explicit to him-/ her and verbalizes it, i.e. writes down. If the experience is troublesome, it can be dealt with later on in collective reflection occasions. Positive experiences are dealt with in the similar way. The student teachers can learn positive models of action through this kind of process. One

should, however, understand that interactive situations are multidimensional and multiform, and one is not allowed to make too straightforward conclusions. It is just for this reason that reflection is important.

4.2.2 The Results of Observation

Knowledge of learners in specific learning circumstances consists of the data of the learning environments and of the students with their different abilities and interests. Understanding students and making right interpretations of their actions is part of a teacher's pedagogical content knowledge (cf. Shulman 1987). According to a previous study (Nissilä 1999) novice teachers were either unsure of their substance matter skills (university subject teacher education, 4th year students) or their ability to control the classroom practices (vocational teacher education, adults, 2nd or 3rd career students). A factor explaining the difference was the different backgrounds of the student teacher groups: while vocational teachers are experts in their fields, but novices in classroom control, the university students are novices in both of them.

Independent of the theme of observation, there appeared comments that concerned some general aspects noticed during the observation. Great attention was given to classroom control in the observation reports of vocational teaching:

At the beginning of lectures the group was restless and plenty of time passed in pacifying the situation. ... A great deal of the teaching time was needed for bringing up "children" and for student control. It was a surprise to me. ... You have to find out on which level of development the students are, use simple language and give instructions clearly enough. Otherwise things don't work.
(TK)

In addition to the normal process of learning, the knowledge of learners is important in problem situations. In interaction situations between the teacher and the students the information received can be limited or eclectic, and hence the teacher expectations, both positive and negative, can become self-fulfilling (cf. Meighan et al 1998). Grave are the cases when the teacher expectations lower the achievements or bereave the students of self-reliance. The expectations can work in the other direction, too. Teachers must be aware that the students have expectations of them, too. The first encounters are often crucial. All students are not as sensitive as the mentally handicapped students were in sensing instinctively the teacher student's shyness:

(On Monday) some students did not take any contact to me as if I had not been present. ... Maybe the students were observing me without me noticing it, and maybe they noticed that I was afraid of them in the beginning. ... On Tuesday all behaved towards me naturally as if I had always belonged to the group. (SK)

Further, the interpretations of the situations can vary according to the fact whether the teacher is an experienced or novice teacher. The experienced

teachers usually have plenty of general knowledge of their students, their backgrounds, the level of their skills and knowledge up to the estimate of their misbehaviours both in frequency and types (Ropo 1990). Lack of practical knowledge seems to direct the attention, or even prevent from seeing the relevant in student observations and their interpretations. This leads to a conclusion that the knowledge of learners is a skill or a domain which is worth practising from the start of teacher education.

The student teachers had all studied theories linked with the topics of observation. They were all motivated for this first formal encounter of the students they were going to teach. Though they were presented examples of more than 40 possible topics, they were rather unanimous in their choices. *The themes chosen* dealt mainly with interaction or teaching methods. They paid attention to verbal and nonverbal communication, classroom discourse, misbehaviour and group dynamics. They were highly interested in how to motivate and activate students, how to create the appropriate rhythm and timing of teaching in lessons and how to choose the teaching methods to fit the situations and the students, as in the following quotations:

I limit the observations to nonverbal behaviour. It often remains unnoticed by the teacher. Because the nature of nonverbal communication is strengthening (the message), it is often left unnoticed. (TT)

I want to explain and describe the student speech in this observation task. I will focus on observing the discourse and speech acts, including the teacher and students. (PK)

My intention is to observe the motivation of the students? Does it exist at all? Is it extrinsic or intrinsic?... I used systematic observation and asked them to fill a questionnaire.(TH)

I wanted to observe different year students and different teaching methods (learner centred, teacher directed) and find out what kind of questions the students ask and to whom they are directed. The basic hypotheses were that in teacher directed learning the questions are mainly to the teachers, while in learner centred teaching they are directed to other students. Another background factor was how many years the students had studied. (KM)

I wanted to observe the intensity of learning during different times of the day. My preconception is that the alertness varies during lessons and during the school day. (TKu)

The time span of active information receiving in lessons is surprisingly short. The observed time of concentration on teacher-directed learning varies from 10 to 20 minutes. Some students find it difficult to sit and listen for more than 5 minutes. (AS)

I concentrated on observing additional, unfavourable actions of the students during the lessons. (SL)

On the following pages the most popular themes of interaction and teaching methods are examined more closely.

Interaction. Both verbal and nonverbal expressions in interaction were observed. Especially understanding nonverbal communication was considered important:

By observing the teacher gets important information. The danger of faulty interpretations is great. The teacher may not humiliate or ridicule the student by saying aloud his/her interpretations. The teacher must be considerate. Observing the nonverbal communication adds to the teacher's professional skills. (TT)

Communication was verbal in workshops, in lessons mainly nonverbal. I realized the differences between students. I think that later on I can pay attention to nonverbal communication: looks, gestures, expressions and body movements. ...I will learn about feelings and moods. (MH)

The nonverbal culture of the building site appeared in swearing, spitting and acting roguishly. I suppose it was an effort to hide one's own weakness in the cold, heavy and demanding working site, in snowy and frosty circumstances. The immigrant student was treated in a badly manner. There was also a certain relationship between the 1st year and the 3rd year students: the younger ones were elbowing and the older were stuck-up. When orders were given to the students, they had minimal expressions and gestures, maybe to show uninterested. Obviously it meant lack of motivation and rebellion against the authorities. The hierarchy in building sites is strong. (SE-H)

Many students observed verbal communication or classroom discourse between teacher and student(s), or between students, and paid also attention to the originator of the moves, the responses and feedback, the amount of dialogue, the contents and quality of the speech acts and to group action in general.

I learnt that the teacher can influence the discussion by choosing the right level of task difficulty and by giving good instructions. Peer advising takes time and the teacher often interrupts it. A teacher should also understand how important the voice control is. (PK)

In observing the student questions in discourse I noticed that everything in the classroom is bound to time, situations and groups.(KM)

When considering the contents of the questions the students address to the teacher, I noticed that the task-oriented student ask other than why-questions. They do not appear either in easy tasks. When a student is quite ignorant, he/she needs more instructions than answers to questions. (AV)

Disturbances in the lessons and classroom control interested many student teachers. Controlling the student behaviour seems to trouble many novice teachers:

I learnt that the students talk surprisingly much of the things which are outside the topic in the lessons. They listen only half-heartedly to the teacher. Maybe this is due to the method: the teacher is only lecturing, she does not even have transparencies. (SV)

I learnt about the group behaviour. Young people behave spontaneously and roughly. To prevent this they need meaningful action. For that reason the variation of teaching methods is necessary. The teacher must be fair, have a proper hold of things, use simple language and give clear instructions. (TK)

Teaching methods. The teacher students wrote with very great interest of teaching methods, activation and motivation methods and of tutoring. They understood that the method which is used acts also as a more or less hidden regulator of the classroom events. When the students find meaningful action in learning, they direct their attention to it, not to unhelpful actions:

The student's attention and capacity should not be used for mechanical copying (the text from the transparency). The students should be guided to taking notes. For young adults the working methods are not proper. (TeK)

I learnt that it is very important to know personally each student when you tutor their vocational practice (AS)

I learnt to recognise better the levels of interest of the students. It means that they should be given information beforehand about the contents of the coming course. I also noticed (from the questionnaire) that all the motives are not intrinsic for studying music. (TH)

Student activity during the different times of the day and lessons as well as the influence of the methods chosen on the motivation and activity were targets of interest in many reports:

I learnt that it is important to change the tasks and break the 90 minute lesson into smaller units for a group of teenagers. (SL)

I learnt that students get interested when they can benefit their own experiences in learning. I also understood that the student alertness varies and it must be taken into account. The students need action to embody all their senses, they also want to move or have some kinaesthetic action. Now I also learnt to pay attention to the events in the back row as well as under my nose. (AR)

The student teacher who observed students in language lessons concluded her observations in the words of Ernesto Sabato's poem (1990):

Learning means participation, finding, searching. If a person wants to develop, she has to learn to make up her own opinions, although it sometimes means mistaking and starting once again. She has to search for unexamined paths and try new methods. (TK, free translation by the researcher)

As adult learners, the student teachers showed high level of motivation: it was mostly intrinsic, since mostly they were really interested in observing the learners, and, moreover, they knew how important the task would be for their further encounters with the learners. They recognised the needs, intentions and goals of their tasks, they had more or less realistic expectations, and they were aware of what kind of conclusions/ performance after the observation phase they were expected.

4.2.3 Summary of Learner Knowledge

In metalearning, the first step is to become conscious of one's motives and the objective of the learning situation. Only after that phase are the strategies chosen. If the purpose of the student teachers' learning was to pass the exam, the strategy was mainly that of surface learning. If the purpose was to understand the issue, the strategy was to be that of deep learning. If the achieving motive was that of own development and learning for widening perspectives, not for achieving high grades or doing the tasks within the given time schedule, it aimed at deep-learning.

The general evaluation of the results of the student teachers' observation practice followed the criteria of learner characteristics in learning for understanding. The criteria mentioned above were more or less completely found in the writings before and after the observation practice:

- they were interested in the given learning task and liked to perform it,
- they tried to find the inherent meaning of the learning task,
- they concretized the learning task for themselves by trying to find connections to their own experiences and the surrounding reality
- they integrated the different aspects and parts related to the subject to be learned into a whole
- they related the newly learned information to earlier knowledge
- they attempted to theorize the learning task
(see Ruohotie 1993, Kautto-Koivula 1993).

On the other hand, there might have been contradictions between the motives and strategies, between the aims and reality. Some student teachers may have wanted to understand and reach high-quality learning results, but they lacked the necessary analytical skills to sort out the relevant information or to set the goal meaningfully. They may also have lacked experience to direct attention in a meaningful way in a learning situation to be observed, i.e. they did not see what was "under their noses". Or they may have lacked theoretical or experiential knowledge to be able to interpret the observations or to theorize the findings. There were a few students who mainly wrote down the observations, but, remaining on the level of description, could not see deeper, under the surface:

First I observed 4 students and saw how they worked. ... Then I talked with them and asked why they found the field in question interesting.

...timed how long they could work silently and effectively (7 minutes) before starting misbehaving (VK)

While another who observes the same topic writes:

One of the students to be observed was autonomous and brisk, another was reflector and the third found it difficult to get started. ... The main observation result is that the students should not be characterized too early, but the observation must be continued long enough. The results may change astonishingly from the first impressions. (TK)

The contributing factors to motivation to gain knowledge via observations of students and situations were both cognitive and affective. They were preceded by expectation of success and self-efficacy. The student teachers regarded the task as meaningful, they were well prepared for data collecting and note-taking and expected to gain professional development by completing the task and reflecting on the results. One of the students who continued with the topic in her thesis writes in its introduction:

My interest in the topic arose during the teaching practice studies. I am interested in learners and in developing my own work. The knowledge of learners helps me outline different perspectives and make observations that are connected to the learner ... Understanding learners is a part of teacher's professional development. It is emphasised if the teacher's conceptions of the learner begin to influence in the wrong way on the teacher actions. Simultaneously they influence on the learner motivation, conception of him-/herself and learning. (Järviluoma 2001, 5.)

Since the information was collected applying an action research method, the reports give exact descriptions on the empirical actions. In this context the most interesting part of the description is the conclusions of the observation tasks. First a couple of minor points of view are considered which add to the qualitative value of the reports as mini-action researches. Reason & Bradbury (2000) list the following five qualitative criteria for evaluating a study: *relationships, practical results, development of knowledge, meaningfulness of action and consequences*.

Outcomes of study. The observation tasks appeared to be meaningful as outcomes of study.

1) *Practical results* show the usefulness of the exercise: the student teachers felt that the project offered plenty of new aspects to teaching and was also successful in many ways:

In any case, the past two days were very enriching time to me in observing the students in the house-building site. On the first day there was a clearly observed suspiciousness towards a female engineer, which started to disappear on the second day. The suspicion towards a woman changed into an obvious interest, and the students started taking contact and asking questions concerning my role, where I come from and why. ... The observation task appeared to be very

interesting and it widened my perspectives. House-building is a very masculine and physical field. Cultural, non-verbal communication is common and is obviously rising from the traditions. (SE-H)

The same notion of the usefulness of the observation practise appeared in all reports. Although the concrete changes of student teacher behaviour on the basis of observation results are merely options, we must understand that new horizons need more time and experience.

2) The purpose is also to evaluate what kind of and *how profound knowledge* was attained and how and in what kinds of methods this knowledge was increased. During the process, the student teachers had active and interactive methods. In the seminar before the observation practice they planned the method of collecting information and the tool of observation, e.g. the observation charts together with the co-students who had the same topic. They also discussed the theoretical points of view before completing the task. Their own experiences and reflections in the previous tasks encouraged to go on with the topic. The knowledge became more profound in collective reflection when sharing the experiences. They started to see even certain patterns in student behaviour:

Strongly teacher directed lessons do not activate students to ask questions, and the students remain passive. In it communication takes place between the teacher and one student at a time, while in learner-centred teaching the mutual communication of students is more common. Seeing this feature in practice strengthened the view I had got from the theory books. There was also a different pattern of behaviour between older (2.-4. year students) and younger students (the 1. year students): the older students asked the group more questions than the younger ones, probably because they had more courage to do so, and because they knew their co-learners better than the first –year learners. --- A group consists of individuals who, as a group, act in conformity to behavioural patterns.(KM)

Individual autonomous work of teacher students before and after the exercise varied from highly autonomous to showing only just the amount of self-directed work which was necessary for completing the task. The latter group was very small, only a couple of persons who either wrote conscientiously down everything that happened within the task frame or who stated shortly the central ideas observed. In neither case was there any reflection, only summaries of observations.

3) Everybody considered the observation action very important and *meaningful*. It was clear to all that the results of observation practice can be benefited in their work as teachers. The most common notion of the students observed in vocational secondary level was that they were surprisingly restless and childish. The student teachers concluded that they have to be prepared, on the side of teaching, to bring up teenagers:

In the Finnish lesson the boy sat again silently nearly all the lesson, sat with a cap on his head and drank coke and drew something on his papers. He talked to

his neighbours. The girl answered even 9 times, sometimes saying the answer to her comrades, and her answers to the teacher were coloured by humorous comments, maybe sarcastic. She played with her pen-case and drew on her papers. Both lacked the ability to concentrate. ... The students ... are still children who long to be noticed and express their opinions sharply. (TeK)

4) The student teachers stated that the observation task brought ideas to think about as prospective teachers. They felt that they could even repeat that kind of task. It was inspiring to see how well and how much more they could *acquire knowledge* of learners and contexts by using a careful method of collecting data. It was meaningful also, because the observation results yielded new perspectives for their own planning of lessons and courses:

...the fault in secondary vocational education is too “fussy” teaching methods, i.e. the students’ own initiative is not taken into account when planning the courses and timetables, choosing books etc. The students in the social and health care get a ready made plan for (only) one week at a time. (TeK)

5) The last criterion, the *consequences of action* means that some continuance comes as the result of the action research. In this observation task the continuance is included in the question: what did I learn? The contents of the gain from this task link the past with the present and future. Comments were written on the actual observation task as well as on other notions. The answers to the question “what did I learn?” were given in the discussion parts of the reports. Some important notions were also written under the title of “main notions”. They were in accordance with the quotations given earlier. The last point of view of this chapter turns the sight into the future: to the prospects of future careers.

Career motivation. The encounter with the real life in the classrooms was the first for many of the student teachers, but not to all of them. Some of them had earlier teacher experience – even several years-, and were studying for the teacher’s qualifications while working. For those reasons a few factors of career motivation can also be examined in the summary of the reports.

Career motivation involves dynamically both intrinsic personality and situational factors. How strong they are varies from time to time and according to situations.

What did the reports tell about the student teachers’ career motivations in the beginning phase of teaching practice?

1) Those who had teaching experience told that only now could they observe situational factors, since as unqualified teachers in their early years of teaching profession their days had been devoted to conveying the content matter. They expressed two main missions (prospective rationality): most of them saw the necessity of flexibility in different situations and in different classrooms. Only one of the analysed reports explained the scanty results of the observation by telling how much below the standards the students were and how completely the teacher had lost the control of the situations. At the same time he praised the

working conditions in his own classroom (retrospective rationality). In this case it is evident that the personality factors influenced the perceptions.

The second mission was the necessity to encounter the students as individuals. They observed that learning in many lessons was secondary, the presentation of the subject matter and playing the teacher's role were primary. They wanted to raise learning to be the primary target. Learner activity and participation need the change of methods. They also need again the flexibility of the teacher, because besides expertise in the subject matter, good teaching presupposes interactive skills and a wide range of teaching methods. Both missions seem to include the congruence of individual and situational factors.

2) The reports of the student teachers without previous teaching experience tell slightly different stories. They, firstly, included more details of student behaviour or teacher actions. Secondly only in a few of the reports situational factors were properly reflected. Interrelationships were seen as important, and the student teachers would like to concentrate on paying attention to the students they would teach (prospective rationality). The so called situational sensitivity seems to be a teacher characteristic which needs time and reflected experiences to develop.

4.3. Knowledge of Contexts and Cultures

Becoming a teacher is based on organized studies, learning through classroom practice and internalization of norms and values of professional groups. In the field of vocational practice and working life, innovations and the fast growth of knowledge favour continuous development of the staffs. The same concerns vocational teachers: they have to keep their knowledge up-to-date and favour vocational and professional development and life-long-learning. They do so by interaction with students and other teachers, with the representatives of working life and research, by observation, with respect to subject matter knowledge, pedagogical norms, values and role patterns. This process is called teacher socialization.

Do professional development and socialization go hand in hand? Do they reveal conflicting norms? Teacher socialization becomes a critical issue if it hinders educational innovation and professional development. Integrated vocational courses (cross-scientific, for instance multi-subject projects) introduce a new approach which asks for professional identity based on pedagogy rather than the esteem typically assigned to the pure scientific disciplines through which most teachers are/were socialized.

Professional development depends on learning opportunities and an organizational climate that fosters the change. It demands a long-term commitment rather than a single in-service activity. A managerial approach

assumes that change has to be imposed from above, from educational administration for instance. A pedagogical approach considers professional development as a process that is mainly determined by teachers' own intentions and prior experiences. Professional development is a process in which the teacher establishes and maintains a level of professional competence. (Hansen & Ohlson 1996, Nissilä 1993.) It includes teaching skills, pedagogy, knowledge of subject matter, current issues in science, and collaboration with other teachers or researchers. Teachers should deliberately engage in developmental processes and work towards new practices. It is a kind of self-cultivation or self-development (Terhart 1990). If successful, it becomes a liberating process determined by the teacher and the teaching context. On the other hand, research on teacher socialization tends to describe how someone becomes a teacher, without identifying good or bad pedagogy.

Socialization denotes a life-long process by which an individual becomes part of a social group. It usually leads to acceptance of group norms, values and convictions. It involves dealing with role expectations as well. A relationship between the social context and the individual is assumed. However the term does not necessarily imply a powerless individual controlled by a powerful social collective. Individuals themselves form the social group that they are part of or want to become a member of. They elect leaders, define the roles in membership or modify goals. (Zeichner & Gore 1990.) Teacher socialization research deals with young teachers' experiences at different stages of socialization. It includes childhood, adolescence, academic experience, in-service training, professional development activities and the apprenticeship observation in the classroom. Concerning the socialization of other than young class teachers or subject teachers, i.e. of vocational second or third career teachers and their socialization in teacher communities, the prior experiences include also working life and the prior socialization in other communities. The first career socialization is supposedly the strongest in a person's self image.

Zeichner and Gore (1990) think that teacher socialization research is descriptive and shows that this field is dominated by empirical studies based on functional sociology rather than pedagogy. Researchers look at the way the teachers function within a school as a social system, how they adapt to given role patterns in order to become a part of the profession. Olson (1992) interprets teaching practice in terms of the conflicts that occur in the classroom. On this view a socialized teacher is someone who went successfully through role conflicts. Success is defined as the ability to deal with these conflicts pedagogically, which implies a moral basis for teachers' actions and reflections. (ibid.)

Unlike many empirical studies, Zeichner and Gore (1990) conceive teacher socialization as a process that is contradictory and dialectical, collective as well as individual, and situated within the broader context of institutions, society, culture, history. This conception is the starting point for this chapter. Here,

however, the focus is not on teacher socialization in general, but on the vocational second or third career student teacher socialization. This view implies looking at the fields of teaching as a social context for teacher development rather than bodies of knowledge. The role of classroom practice has to be attended to, assuming that it does not only change the student but also the teacher's understanding of the students' needs. The broader context of institutions has been included as well. Cultural, practical and theoretical knowledge has to be paid attention to as the framework and explainers of the experiences (see Table 3).

Teacher growth and curriculum development are closely connected. Curriculum expresses a view of knowledge and a conception of educational process. It also provides a framework for the teacher to develop new skills and relate them to the new views of knowledge and learning. A teacher's professional growth is connected with the development of schools as collegial communities. To develop curriculum, teachers need a forum where to share their ideas, insights and problems with each other. They have to redefine their beliefs, images and assumptions on education. (Hargreaves 1980, Kohonen 2000.) Reflective practice is needed to integrate their prior beliefs and images, theoretical knowledge and their experiences of school as an organisation and observed classroom practices into a holistic one, into personal professional understandings. The reconstruction process involves possible cognitive and emotional dissonance of feelings of uncertainty or ambiguity. (Kohonen 2002.) Sharing and caring collegiality is therefore needed during this process.

Since the process is that of redefining prior view in a community, it can be regarded as transformative learning. It is an experiential process that integrates cognitive, social and emotional aspects of learning. Collegial community creates more space for individual growth. Thus there is a reciprocal relationship between developing community and individual growth (Kohonen 2002).

In the present study the student teachers, many of whom already act as unqualified teachers on the side of their pedagogical studies, stayed a period of time in various vocational schools and educational institutes which represented their fields of discipline. There they were advised to learn 1) about the curriculum in general and the process of developing curriculum to meet the needs of that special school unit, 2) about the administration and organisation of the school work as well as of the practices and aspects of collegial and staff communication, 3) about teachers' work in general and their tutor teacher's work in particular. They were also advised to participate in the school events and occasions to the extent that was possible for them. In case they were willing to try teaching they were suggested that they should act as assistant teachers in the tutor teacher's groups. They were supposed to have a double collegiality to be shared: that of the tutor teacher and the staff in school and that of the co-student teachers.

Before this phase of teaching practice they were given unstructured instructions of how to write a report on the practice. Unstructured formulation resulted in a personal variation of documents which all dealt with the given targets of observation, but the points of view and the emphases were very different from each other: everyone stressed the points which they considered important. This kind of individual approach emphasizes the student teacher's self-understanding. He/she exerts pedagogical reflection based on the concrete situations met in the school. The larger themes which their reflection concentrated on were 1) organisation of the school containing administration, organisational aspects, learning conception of the school, curricula, programs, evaluation principles and processes, possible profiling, and international contacts; 2) working communities of teachers, leaders and the staff as a whole; 3) interaction between teachers and students and student-student interaction; and 4) observation of teaching both as an observer and an assistant teacher. 5) Some students added a chapter on "What did I learn?". It is notable that only few student teachers wrote about all of above mentioned themes. Instead, they reflected on the notions that were of personal importance to them.

A practice period of this kind aims at a more holistic picture of the school organisation and the student teachers' future teaching context. Moreover, it aims to be the starting point of the growth of a new kind of pedagogical literacy, of understanding student groups and their needs but also of understanding curriculum from various perspectives. Critical understanding of profession presupposes ability to look at the profession and teachers from different angles. It implies understanding that a teacher's work is constrained by situational and social factors which often place the teacher to the role of technical implementer of the given curriculum (Grimmett 1996), not the active developer of it. To understand or to explain their observations of the school practices or to learn about other aspects, the student teachers were advised to interview the members of school communities. The interviews acted as informative discussions as well as vehicles to socialize the student teachers into school communities in general.

4.3.1 Aims, Structures and Administration

Darling-Hammond (1998) stresses the importance of learning from encounters with students in the classes. The *earlier phase of the teaching practice concentrated on students and situations. Now the aspect is widened to consist of teachers and other staff, administration, statutes and principles.* Moreover, teacher learning needs to be connected with actual teaching, supported by ongoing theory building (ibid). By reflecting on what they saw and sharing it with others the student teachers tried not only to learn the practices but get induction to a teacher's work at school, and also start socialization into a vocational teacher's profession. The vocational disciplinary aspect is considered important: the vocational school cultures represent the same discipline areas as the student teachers have gained education and working experience in.

Cultural knowledge, on the other hand cannot be learnt overnight: it is a function of time in any profession. Among the student teachers there are, however, persons who have already worked as teachers. For this reason the collective sharing can be supposed to help the beginners in the group. About half of the analysed reports (N=50) did not introduce the framework items of teaching nor the expressed learning conceptions of the schools in question at all. Instead those matters were reported orally in the practice seminar. Out of the remainder, the analysed part (n=24) ten reports were repeating the brochure text without commenting or reflecting it. The rest included personal observations and reflection on organisational matters. In general, the focus of the reports was on other aspects, on the interaction and characteristics of the working community and /or the classroom interaction. All reports, however, dealt with the observations of teaching methods.

The historical relationship between school subjects and academic disciplines has generally been essential for teachers to attain a status as professionals. Biology, chemistry and physics teachers have acquired a relatively high status, and so have the technical and engineering subjects as well as the economical and medical fields. Languages, sociology, health care and humanistic subjects follow after. Empirical observations indicate a strong enculturation and/ or socialization effect related to school subjects (Brämer & Nolte 1983). Can it be true of vocational schools and polytechnics? The latter give, it has to be remembered, together with universities in Finland academic education which is traditionally concentrated on the disciplines. An important question stays still open here: is it subject specialists or professional teachers the polytechnics and vocational schools start socializing into? Devaluation of pedagogy is often imbedded in college, university and vocational school teaching. What happens to the student teachers after this multi-subject vocational teacher education, remains to be answered later.

Socialization into school cultures demands also the definition of the school climate as the observations of the student teachers indicate. Luopajarvi (1995) has defined it from the performance point of view including the members' observations about an organisation. Sarala (1988) observes that organisational climate is a relatively stable state which is experienced by the members of the organisation, affects their behaviour and can be described by using certain features of an organisation.

In an organisational climate the following factors can be identified:

1. Communication which means how well the members of the organisation are informed regarding matters concerning the organisation.
2. The possibilities of the staff to participate in the decision-making process.
3. Taking care of personnel's welfare, work environment and the appropriate organisation of work assignments.
4. The staff's influence possibilities.
5. The development and efficient utilization of resources, equipment and work methods.

6. The enthusiastic support of staff's work and work motivation. (ibid, 78-80.)

In the present study the factors influencing the climate are first examined according to the notions of the students, i.e. collecting what they say about the organisation, administration, curricula and the official learning conception (points 1,2,3 and 4 above). Then the observations of working communities are dealt with (points 1 and 5 above). Lastly, the interaction in the classrooms and notion on the teaching methods are paid attention to (points 3,4, 5 and 6 above).

Organisation and administration. In observing the environment the individual's value system plays a part especially in estimating the multidimensional things he/she meets. A valuation is therefore the result of descriptive observations and the integration of schema-based values. The cognitive environmental attributes are based on schemas which are founded in work-related values such as recognition or challenge. Since the meanings of situational factors for an individual can be defined as valuations, people have internal "standards" or expectations to which they refer when making judgements, for instance if the duty is challenging or not. This process is subjective: the cognitive evaluation of the meaning of environmental attributes is based on what a person values, wants or desires. (Ruohotie 1995.)

It seems, according to research results (e.g. Luopajarvi 1995, 62), that the school size has an impact on the school climate. In the present study the vocational institutions were mainly small or middle-sized. Student teachers' perceptions, and official organisational maps as well, told the same story: the schools seemed relatively democratic in regard to participation in decision making and the defined roles of the leaders:

The department has a matrix organisation with various guidance relations and shared responsibility (TL)

The head teacher told that many processes are taking place in the school. They are developing the EFQM system, constructing the course units into "products", and running several projects. (SV)

Besides the administrative team there are 10-20 supportive teams. ... 51,4 % of the teachers' working time is devoted to teaching and the rest of time is spent on the duties imposed by the employer, e.g. to individual further education, student counselling and tutoring, making course timetables, interpreting curriculum into practices, participating in different working teams and meetings, contacting the enterprises, etc. The timetables are devised for one period at a time so that the assisting head teacher writes the common events on the timetable first, and after that each teacher adds his/her own suggestions. The problem is how to act with the skills show tests, since they have to take place on the days determined by the on-the-job learning places. On those days lessons must be cancelled. ... Combining learning-on-the job and school programs tries to equip the students with the kind of vocational skills that help them to get employed and, on the other hand, makes it easier for the enterprises to get skilled employees.(SL)

In general, the student teachers concluded that it was important to learn how the school organisation functions, how the shared responsibility works and how autonomous a teacher can be.

However autonomous, the teachers have still little influence on the class size, length of a school day or the amounts of money budgeted for schools. Because of the relative methodological autonomy of a teacher in his/her classroom, the administrators in school, local or district levels have relatively little influence over teachers' teaching strategies or motivational techniques used in the classrooms. The schooling process functions thus at many levels and by many interest groups. To understand the undercurrents, the phenomena which take place under the surface in an organisation was, consequently, too difficult a task for visitors, i.e. the observers (student teachers) to analyse in detail.

Curriculum. According to many reports based on the interviews of teachers, the process of school-based curriculum work in the secondary and polytechnic level institutes is shared by all teachers. The development work is connected with feedback practises. Every one or most of the teachers belong to the teams aiming at curricular development, say the official brochures, and continue that students are asked to give feedback regularly. Student teachers report of curriculum development and feedback practices in the following way:

The person responsible for the process of the curriculum development is the director of educational programs. He is assisted by teacher teams. The curricular plans are dealt with in the program councils. The plans are accepted by the director of the department. The feedback of the students has influence on the changes of plans. The feedback is collected systematically after all courses. The institute has been profiled as fostering northern agricultural, forestry and horticultural environment expertise. (TL)

The institute has not a common feedback form... the feedback from the students is collected randomly. The head-teacher collects oral feedback twice a year. (TS)

These quotations express that the practices vary as to the measures of the official agenda. The targets of development work have, however, been defined, according to the perceptions of the student teachers. As a general impression the student teachers sensed that, besides giving instruction, teachers were engaged in many development and curricular duties.

Learning conception. The official learning conception in vocational institutes was explained to be that of cognitive and experiential learning which stresses reflection in both theoretical learning and practice periods. The goals of teaching come from the national curricula, but the contents of the courses are, in many cases, planned together with the students. The official learning conception and that appearing in the practice were not always parallel. Sometimes the conception had to be understood by observing the actual lessons. This is what a student teacher observed of the practices:

I talked with the students and they told that 90% of contact teaching was lecturing and they themselves wanted more group work and discussions so that they could learn better from each other. These students were adults who had a long working experience in different health care organisations. (TS)

Teaching sociology in the polytechnic was observed by a sociologist in the following way:

I thought I sensed some elements of constructivist-humanistic approaches, although my most evident impression was that there prevail learning-by-doing methods. (SK)

Another student teacher who observed the teaching of health care, sociology and educational science on the polytechnic level tried to learn of the learning conception both by asking the head teacher and the staff questions and by observing the approaches to the contents of teaching. She reports in the following way:

The implicit learning conception referred to traditional approaches of learning by heart, of teacher directed methods and laboratory work... In health care there prevails the scientific ideal of the discipline (held especially by the medical doctors) which is present in behaviouristic teaching methods. The contents of teaching are explained shortly and concisely, in the behaviouristic way. More comprehensive reflections are regarded as negative (e.g. in anatomy). In psychiatrics there prevails interaction and humanistic attitude. ... Relating the methods to the subjects in question is still under construction in my mind. (AJ)

The following student pays attention to the learning conception which characterizes lessons in electrician courses in a vocational school:

The learning conception is not expressed explicitly in the written documents, but is hidden in the goals of separate course units. By observing the lessons the behaviouristic conception was prominent. The teacher was a "besser-wisser" and the students' role was to listen and receive in theory lessons. In the practice tasks the theory was to be tested independently and conclusions made. This, again, refers to constructivist learning conception. The greatest problem of this school was to find proper places for on-the-job learning. (VK)

Student teachers who had been observing and working in the polytechnic of natural resources were well informed of the structure, administration and learning conception of the department.

The official learning conception is constructivism. PBL is carried out according to a Dutch model. ... In the lessons which I observed I thought that the way of learning was that of learning-by-doing, constructivism in fact. ... In the basic studies the students wanted to have mainly lectures and contact teaching. ... (TL)

The tasks of PBL were separate, the whole was not constructed. (KV)

...cognitive learning conception directs the function... Learning to learn ... life-long learning are the aims that are stressed in the education of specialists. During the studies you meet so much information which should be internalised that it is impossible to learn it by heart. The contents must therefore be outlined in wider units in which you can add new elements to the cognitive structures learnt earlier. ... Different courses have been placed in the timetable so that understanding and knowledge are deepened all the time. The practical application of the same theory increases during the studies (KM)

The devaluation of pedagogy was expressed jokingly, to soften the spoken words. The basic idea behind the words is clear: it is the discipline and the contents of teaching that matter. This is how a student teacher was addressed:

A good engineer is wasted when the soup is spiced with pedagogical jargon. The best thing is to concentrate on the substance (AA)

Collaboration and cooperative learning as elements of socio-constructivist learning conception were also observed, like the following observation about the secondary business education:

Teachers tend to collaborate across the subject matter borders in educational matters and planning, not only within the same subject area. (SF)

All the examples of collaboration were not equally positive, especially if the collaboration was not started voluntarily. During the last few years schools have undergone great changes which have resulted e.g. in problems of fusing school cultures together. The following example is from the polytechnic of health care and social services in a locality where several small educational institutes were fused together because of economical reasons:

In the fusion of schools their values were also to be fused together. In health care units they have traditional values in teaching and learning: transparencies and lectures, in social services they prefer functional and sharing methods. The framework issues also cause trouble: besides diversified cultural practices the new fused school has a new curriculum and minus economy. There is collective tiredness and constant haste of teachers. ... The national curriculum of assistant nurses ...seemed over-idealistic, the goals of the school-based curriculum are more realistic. The underestimation of assistant nurses' work is seen in the teaching of some teachers. (A-KK)

In general, evaluating the practices of school organisation and administration, it seems to the student teachers that the EFQM standards are well in use in the observed educational units. It means that the organisation, administration, curriculum development, student evaluation and other important school practices are planned and implemented in an open and transparent way. There is not much "double" information, i.e. what is told in official documents is not too much different from the real practices. In some schools the teachers were not willing to

tell about their learning conceptions and expressed it directly e.g. in the following way:

Ordinary teachers felt that they could not follow their ideals in teaching. A teacher told openly that she cannot “ describe her learning conception in official terms or without terms”. She told that she rather tried to use common sense, how to act in everyday situations and how to react to students’ demands and comments. (SF)

There is an underlying connection between the discipline and pedagogy in the notions. Although the teachers in general tend to define themselves as subject specialists, like science teachers in the research material of Hansen and Olson: “Traditionally... we are socialized by the subject, not by the pedagogy” (1996, 677), the student teachers in this research are not initiated into discipline cultures openly. Although the polytechnics represent educational institutes which are formed round central disciplines, and although there may be some devaluation of pedagogy for traditional or other reasons, the academic disciplines are not, hopefully, the only context of socialization.

An interesting question arises: why do the teachers of polytechnics tend to see themselves as specialists embedded in teaching, not as specialists embedded in socialization through disciplines? The answer can be found in the nature of polytechnic and vocational secondary studies: they are theory applying rather than theory creating. While some school subjects directly mirror academic disciplines, development has led to combined subject areas only existing at school (cf natural resources), which might weaken the otherwise strong enculturation effect related to subjects only. Further, the status of pedagogical studies of all teacher groups in the Finnish educational system is valued. At present it is not fashionable to express too loudly the private devaluation of pedagogy. Because of compulsory teacher/pedagogical education for qualification in teaching, the disciplines become permeated by norms which the teaching profession tries to emulate or foster. Still, the general atmosphere is not unanimously favourable for pedagogies. The supposition here is that the student teachers didn’t notice or didn’t want to write about the conflicting views of disciplines and pedagogies. Another supposition is that since all teachers in all vocational institutes in the Oulu Region Joint Authority for Vocational Training are obliged to act as tutors to vocational student teachers, it has had some positive influence on their attitudes to pedagogies.

If the polytechnic teachers sometimes underestimate pedagogical matters, the vocational school teachers meet the need of pedagogical skills every day in their work: their target groups range from teenagers to adult groups, which demands flexibility and educational perspective from the teachers. Teenagers need education, control and even upbringing. The adults need encouragement and other kinds of psychological measures than the youngsters. Vocational school teachers find teacher communities as their socialization contexts more readily

than bodies of knowledge, partly because of the daily challenges. On the other hand, those teacher communities are supposed to represent the same area of discipline. In big vocational schools with several departments and vocational areas the teachers of one department, representing the same discipline feel social affinity. The student teachers were socializing mainly with the teachers of their subject areas during this period. It appears in their reports since the persons interviewed are named.

4.3.2 Contacts with Working Communities

Working communities in this chapter refer to school staff, mainly teaching staff and people who work with them. The student teachers were supposed not only to observe the practices as outsiders but to associate with the teachers and the staff and possibly act as assistant teachers in the classrooms. Student teachers mentioned, commented, described or evaluated chosen features of the working communities, mainly referring to the school climate and how it is created through teacher roles, duties and collaboration. Few of the 24 reports stated shortly that the atmosphere in the school was good/ warm/collaborative or that the teachers were positive. Some didn't write of the working communities at all, but concentrated on the organisation. In this chapter, the rest of the reports will be studied more closely as to the observations of working communities.

One of the psychological goals of the development of teacher's work is to make it possible for teachers to develop their personalities at work. Not only to make the results of the work satisfactory, but also to make the teaching process satisfy human needs. The development of one's personality does not mean gathering more knowledge or technical skills, rather it means developing one's cognitive and social skills. The modification of work promotes teacher personalities, if they are allowed to retain and expand their personal strengths in their work. Many of the teachers' individual characteristics as well as social and school related factors set limits for the modification of work to reach its goals.

In the school staff rooms, teachers with different backgrounds usually discourse with the colleagues on the matters connected to the contents of teaching. The discourse tends to reflect that of the *affinity of subjects/ disciplines* rather than of pedagogues. The subject matters: language teachers and science teachers, for instance, talk of their problems and solve them according to the social rules of the respective disciplines. Transgressing the borders of disciplinary cultures may imply, from a teacher's perspective, invading into someone else's territory. Problems can arise even, if the teachers, despite pedagogical education, represent different educational backgrounds and use the language of their micro-cultures. The next example shows the socialization on the basis of educational levels and subject areas:

Most health care teachers have non-academic, secondary exams, social care teachers, instead, have academic exams. In spite of this, the health care teachers

give the impression of greater authority. The director of the institute was, however, chosen from among the teachers of the social care. (A-KK)

Empirical research has shown that certain characteristics of disciplines correlate with the personality traits of teachers. The same may concern the teachers at work as well. These characteristics emerge during the childhood (see 4.1.3). If Gebhard's (1988) psychoanalytical conception is correct, school subjects reinforce existing personality traits. Teachers representing different disciplines have different ways of organising and selecting actions. In small working communities the parties can be formed only on the basis of small unimportant differences in approaches to the disciplines, or the contents and combination of the subjects in the academic exam, although the real reason is the unconsciously experienced difference in personality characteristics. If the teachers do not share the feeling of being in the same boat, the defensive routines can appear in various situations:

Preparing the curriculum was the time of "boiling hot" emotions, when teachers fought for their courses and assured that theirs were necessary (KV)

The observations of *psychological climate* are emotionally relevant cognitions. From those cognitions one forms a general climate, in other words individual's observations as to what extent the work environment is to their organisational well-being or to them personally beneficial or detrimental. Individuals experience their working climate in unique ways. These perceptions about working climate affect their work motivation and satisfaction. The characteristics of work should be studied in the social context where the work is performed. Work experience and organisational climate are not independent of each other. (Ruohotie 1995.)

There are several indicators of school organizational climate (e.g. Luopajärvi 1995). Here the taxonomies are omitted when trying to analyse the observations of psychological climate as experienced by student teachers. For instance, the ethos or the climate of the school could be defined by the ecology and milieu factors, which are not discussed here in detail, and by the social system and culture factors, which were partly discussed before, partly will be dealt with on the following lines.

In general the student teachers had the impression that the teachers were committed to their work, had self-respect and were extremely busy to meet the various role expectations imposed on them:

The teacher has to master many domains of life. He/she has to be a specialist, a leader, a conversationalist, organiser, evaluator, designer and actor in a drama. (KV)

A teacher has to participate in various activities: to develop his/her work, be a member of the teams, act as a tutor and mentor. She has to participate in the working life practices and organise on-the-job learning periods for the students. He/she needs good collaborative skills and desire to act together. (AR)

I noticed during my practice that today the teachers work really hard. The atmosphere of burning-out could be sensed. Too many changes and too little time to master them. ... There does not seem to be time for anything else but to preparing the next day's lessons. This kind of living from hand to mouth is obviously stressing. (TK)

In the following, trust and openness, as well as the perceptions of teachers' mutual relations, are the targets of observation. The size of the school, as was stated before, is an important factor in the perceived openness, trust and the feeling of sharing and caring. In small working communities:

I learnt that it is pleasant to come to work, when the relations between teachers and other staff are good. They have every Monday a common meeting in which they analyse what has happened and what will be in the program. It is nice that also the charwoman, caretaker and cook are present. In the school community all members work for the functions of the school and for the goal of student learning. ... In the cafeteria all the staff were sitting together and the atmosphere was warm. Does it depend on the quality system or on the small size of the school that the team spirit is this good? What about if someone in the staff were to be blamed for something? Dare anybody say anything not to violate the good spirit? No such a case appeared. To my mind the head teacher and the studies counsellor were leading figures. Other teachers always consented with them. (AB)

The climate may have been forced to be this unanimous by oppressing the opposition. A visitor or a student teacher can't aggravate deep reasons and motives. This kind of notions, however, create high expectations of becoming a member of teacher community.

Opposite perceptions were reported by a student teacher who represented the same field of substance, but observed the practises in another institute:

The staff in one department... had a great mutual feeling, but they didn't pay any attention to the staff of another department in common meetings. ... a lot is discussed and taught about collaboration and team work. But even we can't do that, but always somebody has to be offending others. Is this possibly due to the bad conscience of the person offending? And thus he/she has to be blaming other people, e.g. in the common meetings. (PH)

Although many students commented shortly that the atmosphere in the school was good/ warm/positive so that the perceptions needed, according to their opinions, no further explanations, the students who found something to criticize

explained their observations more widely. They understood that the spirit of the social context is crucial to the full involvement of the teachers:

According to T the atmosphere is relatively bad, and he sees it to a large extent as the problem of leadership, and it (i.e. bad atmosphere) is seen in his attitude and the way of commitment: he is no longer as committed to his work as he has earlier been. (TS)

(In school) people are shy to go to each other to talk and reveal one's ideas to others, and, at least, people are careful not to stir on somebody else's area. Asking for feedback and dealing with it in a mature way is surely a goal of learning in every staff room. Collaboration is powerful in teacher's work, and at least my own glimpses in experiencing integrated courses and other projects during teaching practice show that the teacher's work and thoughts can be shared. (TL)

Sometimes teachers find a common topic in blaming the low abilities of students. In some staff rooms that kind of talk has become nearly a form of socialization. You blame students and their bad test results, their disturbing behaviour in the lessons and their lack of motivation. It is a kind of staff room jargon which could be replaced by pedagogical problem solving and discussion. The tradition is, however, strong, and can't be changed easily:

"You succeed in getting to university, if not, you have to be satisfied to getting to polytechnic, and it is seen in the student learning." Many teachers complained of the bad quality of the student material. (AA)

This kind of comments conceal a large bulk of attitudes and prejudices, lack of teacher motivation and lack of ability to change the methods when meeting new groups of learners. If the teachers are apt to teach only theories, the quotation above may express the customary attitude. Since polytechnics are theory applying organisations, the teachers should have realised their roles, or perhaps they are unable to help the students to combine theory and practice, or they for some reason or another want to explain the future exams results beforehand by blaming the students. Here "a fair portion of pedagogy might do good", stated the student teacher quoted.

It seems that a teacher's immediate working context may play two different roles. The first role is the adaptation of the teacher to what others find important about student learning, i.e. the expectations of the learning outcomes, as in the case above. The second role refers to the types of students one has to teach. The above quotations tell that teachers are convinced of the irrelevance of any kind of pedagogical methods or experimentations.

Most teachers as well as student teachers who reflect on their experiences have changed and are still changing their beliefs about school cultures and student learning. The non-reflective practitioners are supposed to adapt their

beliefs about e.g. student learning to external influences. However, most teachers do not seem, according to the observations, to use systematically additional or external information to shape their beliefs. This could be done e.g. by collecting feed-back from the students. The teachers referred to above said in the interview that their students can't give useful feedback, since they don't understand enough of the substance matter!

The school culture can also be understood as a *broader context* than the immediate working context; the former can greatly influence the latter. Combined with the role of the school leadership the broader context was understood as an undercurrent of school activities in many reports. Here is one example:

It was positive to notice that the outset of all activities is the student and the supporting of him/ her at least officially. ... When asking the head teacher if drugs and alcohol were a problem in the school, I got a surprising answer. She thinks that drugs are surely present in this school as elsewhere in Oulu.... A greater problem are the increasing mental health problems of the students and mental ill-being. This gave something to think about, for I didn't know anything e.g. of the frequency of young mental health problems. (MH)

The last quotation brings another element to the composition of a vocational teacher's social context: she/he has to be able to understand something of the social and mental problems of the students as well. The role is, undoubtedly, wide.

One factor has to be pointed out still, although the student teachers don't write a word of it. It is the question of gender in the staff rooms and in the classrooms. Some disciplines have been, up to this day, *gender specific*. The origins of the gender bias go back to early childhood and the differential opportunities to deal with technology. The origins of gender socialization are manifold and have been discussed extensively (Tillman 1996). Many boys are interested in physics, chemistry and related technologies, while girls prefer languages, arts, home economics and handicrafts. This division has shown a change in the last few decades according to the general change of attitudes. Among the students and teachers in, for instance, technical field and home economics the division between male and female vocations is still clear. It is remarkable that the student teachers paid no attention to the genders in general, neither concerning the students nor the staff. Is it a norm that has been accepted in the staff rooms and classrooms? Or does it tell something about the observers' value systems which play a certain part when observing the environment (Ruohotie 1995)?

If the socialization into working communities and the observations of teachers' mutual relationships result in the change of beliefs and understandings of the student teachers, what might the change be like? Teachers usually learn by experiences, but the change is based on reflection. It is known that it is difficult

for teachers to transcend their own situation individually. By working collaboratively, they can develop more sophisticated beliefs. However, collaborative learning must not lead to complete dependence on others and on the context. The observations imply a notion of the relevance of personally initiated learning which must be acknowledged and, hence, of autonomy which is one of the characteristics of the teaching profession. Research on teachers' practical knowledge adds new information to the understanding of 'good' teaching. It will be dealt with in the next chapter.

4.3.3 *Immersing into School Practices*

According to the definition presented by Schein (1978), both the individual's integration into an organisation, as well as their later contributions to the organisation are part of career development. From the point of view of the individual, career development advantages are an increase in satisfaction and progress in one's own career; from the point of view of the organisation, the advantages are growth in productivity and an increase in efficiency. The individual's integration into an organisation takes place by "adaptation" processes. These are developmental activities used by the organisation, such as self selection, training, and delegation of tasks, promotions, directions, advices as well as different forms of group collaboration. Concerning the student teachers, the foremost means of adaptation is that of assisting the tutor teacher and observing the lessons of several teachers after which the reflection of experiences makes the meaningful notions explicit

Earlier it was often stated that teaching profession is a calling. At that time it was considered self-evident that those who pursued a career also had a high career motivation. Later it has been discovered that teachers' career choices are influenced more by other factors than the calling (Honka 1984).

Career motivation personality factors can be grouped into: 1) career flexibility/ resilience, indicating how well an individual copes in discouraging situations, 2) career insight, indicating how realistic individuals are about themselves and the organisation, and to what extent they can relate these perceptions to career goals., and 3) career identity, which indicates how important a career is to one's identity. Its strength can be seen in one's involvement and desire to move ahead in one's work. (London & Mone 1987.) The first area, career flexibility and resilience will be dealt in this chapter, the second and third, career insight and career identity in the connection of the self-concepts of student teachers (4.4).

Teachers' development in their teaching quality is strongly connected with the ways in which they build up *practical knowledge* (cf figure 9). This knowledge guides teachers' actions in practice and is based on personal and professional experiences. Practical knowledge is action-oriented knowledge, acquired without direct help from others, allowing individuals to achieve goals

they personally value. It is above all experiential and implicit. (cf. Eraut 1988.) It is highly contextualized and personal. It comes into being through experiences in practice, but it may have other sources as well, for example: a teacher's reflected biography or conceptual knowledge learned e.g. during teacher education period (see 4.1). Norms and values are also part of teachers' practical knowledge. In the course of time teachers integrate the information from these and other sources into a knowledge base which they use in their own practice. (Beijaard and Verloop 1996.)

This integration process is strongly determined by their own teaching situations and how these are subjectively experienced (Freiman-Nemser et al 1996). However, beliefs determine what knowledge and to what extent this knowledge will be interpreted, personalized, and integrated into the conceptual frameworks that guide teachers' actions (Eraut 1994). This filtering effect influences on the students teachers' observations on school practices and their gain from those experiences. Although teachers' beliefs are difficult to change (cf. Richardson 1996), it is assumed here that student teachers' beliefs about education can change depending on the content and nature of influences that one is subjected to.

The influences to be undergone are those of observing or assisting as novice colleagues in the classrooms. Through the process, if successful, it is possible to attain double goals: that of being immersed into classroom practices and that of being socialized into teachership. Teacher thinking is difficult to be studied in some other way than observing teacher's practical knowledge.

Teachers have a more or less elaborate action repertory for the development and structuring of learning groups. A factor in this is *personality*. If this view is predominant, professionalism doesn't matter, but something undefined, hardly comprehensible and not teachable and learnable – the charisma of the personality - is central. While this mystification limits professionalism, something noteworthy is implied in the concept of teacher personality, not present in the conception of professionalism discussed above. Something about the personal and individual is involved in making the difference between a teacher who merely does the job and a good teacher. The personal features mark the professional self.

In the next figure (figure 9) the first column represents aspects of organizational context, the second column the practical aspects, and teacher personality aspects are listed in the third column. Each column describes the components of the concepts which are expressed in student teachers' essays. The components are in connection with each other vertically and horizontally. The teacher's self concepts will be dealt with in 4.4.

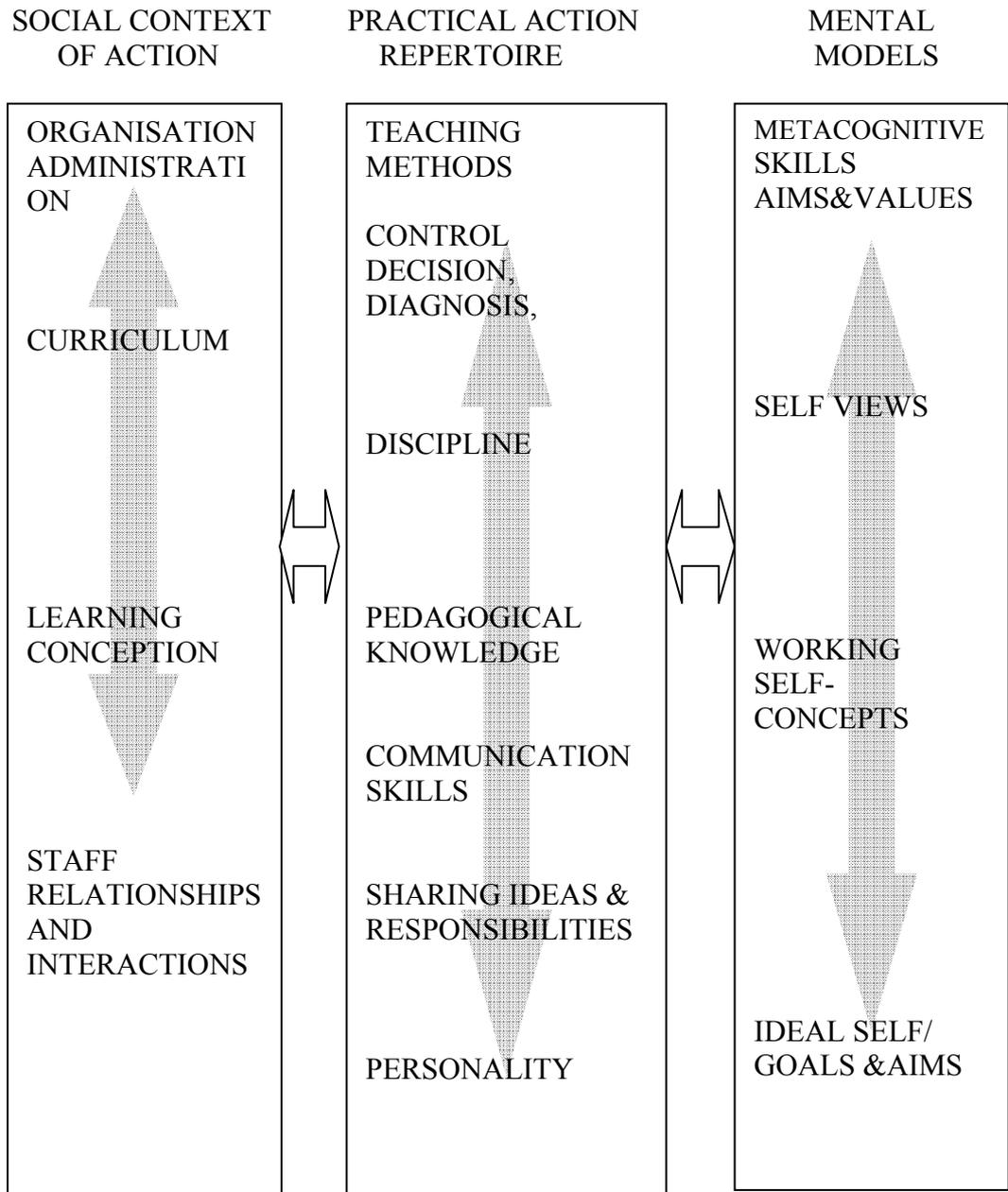


Figure 9. Contextual, practical and mental dimensions as expressed by the teacher students concerning their novice teachership.

The core of the professional self is a hierarchy of aims and values which the individual has developed in order to make decisions in serious situations. The professional is capable of reconciling external demands and his/her self mirrors expectations of others as well as an ideal self image which is compared to the realistic self-views. Individual professional development is built through interaction with colleagues and through reflection about inner wishes and perceptions. In this self-organised process personal impulses and objective ideas of a desired picture of self should be balanced. (See 4.4.)

Disciplinary, science knowledge suitable for the construction of a professional self-understanding does not directly allow for mastery of everyday professional practice. Action knowledge is acquired in practice situations with or without the support of the colleagues. Teacher education tries to overcome this problem through action oriented learning and systematically planned practice based on reflection, coaching and supervision. The communication of practical knowledge to student teachers is often hampered by the lack of collegial exchange, and by the fact that the work is not always goal oriented and, if goals are formulated, they are rarely evaluated. Thus the feedback needed for professional self development is missing and, consequently, it is difficult for external evaluators to distinguish between good and bad practice. To have a novice colleague with whom to share the ideas of teaching and learning and planning of practical measures, gives impulses to the tutor teacher, too. The student teachers act as coaches, in their turn, e.g. in bringing new ideas from their teacher education contexts, and the mutual relationship in the school is expected to be beneficial to both partners. Fortunately, in the reports analysed, this appeared to be true in most cases.

The professional self is developed in a community of persons involved in teaching and learning as colleagues, students, researchers, teacher educators, administrators, parents or politicians. Teachers learn a lot from their students, in fact the classroom can be a proving ground *sine qua non*. Good teachers learn from their mistakes if they are able to reflect on their actions. The fact that teachers learn from experience is often ignored in criticism which maintain that the profession lacks an adequate knowledge base for practice. Research on other professional practices suggests, however, that others work as much by tacit knowledge as by applied science (Polanyi 1958, Schön 1983). They have found that it depends on the circumstances of practice what the balance will be between intuition and the use of theoretical knowledge. The complex nature of practice involves whole people in complex and ambiguous situations.

Reflexivity is often connected with the use of rationality and intelligence. Learning takes place, however, often through non-rational processing. Since personality is a unity, making use of emotional area in the learning process is important. In the world of science people know that in rational and empirical acquisition of knowledge also intuitive and emotional solutions are needed. (KL)

The aspects of practical action repertoire that emerged from the student teachers' observation reports (figure 9) are studied more closely in the following passages.

Sharing ideas and responsibilities. The problem remains that what teachers know is inadequately expressed and shared both within the profession and without. It has led to inadequacy of teachers to develop expressions of practice, to make the tacit explicit. Also in teacher communities there prevail the difficulty of teachers to learn from each other.

The teacher seems to be an independent entrepreneur in his/her classroom. I wonder where were left the collaboration and shared expertise – in the haste of daily duties? (TL)

Two-way communication between teacher and students is rare. I have been thinking the reason why. Don't teachers talk about the working methods, don't they accept feedback from students and colleagues or are they so busy that there is no time for developing teaching? (KL)

Coaching the student teachers gives ample opportunity to share with a novice colleague and try to make the implicit knowledge explicit when explaining and illustrating the practices to a becoming teacher. From student teachers the tutors can learn both about the young people's life today and about up-to-date working life knowledge, if the student teachers come to the teacher education straight from enterprises. The discourse can be fruitful if both parties appreciate each other's practical and theoretical knowledge. This view of appreciation is revolutionary: in the past times the status of the trainee was low. On the other hand, the student teachers in question are second or third career adults: " I felt significant the discussions with different teachers." (TL)

The role of collective action can be remarkable in teacher development. Professional knowledge is often the result of dialectical process in which teachers (and student teachers) do challenge each other, often informally. When teachers are encouraged to discuss their work with each other, the result is an opportunity to talk about problems in mastering the approaches to teaching, mastering the new subject areas or controlling the classroom activities. Again, the role of the students is seen important in echoing the comments from their points of view.

As a student teacher and an assistant teacher I was taken along in all activities. I felt I was welcome. ...I felt that I was in a unique situation, when I was allowed to observe and learn from another teacher and her/his teaching. I... discussed with the students about their experiences in on-the-job learning, and I could hear many interesting stories on how working life teaches. This adds to the reliance on a teacher, when the students tell willingly of their thoughts. (TK)

The tutor teachers probably find it easier to share the ideas of teaching and learners with student teachers than with colleagues. The reason may be the lack of time, but some part might also play the social rules according to which the teachers avoid too serious themes during the breaks:

The role of the student teacher during the practice period is favourable in the sense that then he/she has a person nearby whose duty is to ask and give comments, to exchange ideas of the situations etc. This kind of collegial support every teacher would need - from time to time. In this it seems, however, to be too well true the supposition that when you are a "qualified" teacher, you are to get along by yourself... (TL)

Another reason for the lack of professional exchange of ideas in schools may be the absence of a culture of discussion in schools. Since work has up to these days been defined as producing a definite number of lessons, there is little incentive for collegial exchange. Moreover, lack of reliable information may lead to exaggerated statements about what is happening in schools.

Discipline. Subject knowledge required for the fulfilment of educational tasks in vocational institutes and polytechnics is partly different from respective scientific knowledge which is generated and learned in universities. Action knowledge for teaching various subjects is acquired in practice situations with or without the support of colleagues. Scientific knowledge suitable for the construction of applied science teaching programs, with the viewpoint of vocational knowledge, needs training both in actual work in the respective disciplines and action oriented learning in systematically planned teacher traineeship based on coaching and supervision.

Thus, in all levels of vocational teaching it is important to pay attention to the central role of subject knowledge in the programs. Teachers, as pedagogical professionals, are also members of disciplines, have an established structure for research and organisation, assessment and examination boards and a discourse about respective themes in textbooks, journals, lectures, and conferences. Teachers are socialized by learning these practices.

The student teachers pay attention to the teachers', especially their tutor teachers' subject knowledge, experience in practical applications and the internalized theory-practice connections and its influence on student behaviour.

Teachers seem to take efforts to be appreciated according to their substance knowledge. ... Teachers found strange having to bring up their students, since younger students have come to study only during the last few years. ... I tried to find something that could characterize collectively the essential features of the teachers, in case there really exist such features. The common feature was a certain kind of self-assurance of all teachers. Perhaps it comes from some feeling of control which is connected to situations. This feeling, again, comes from the mastery of the substance matter. ... Students feel surely safer in the lessons of self-assured than of uncertain teachers. Perhaps the student experiences the matters taught in this way more trustworthy. (AP)

In other cases, opposite to the one quoted above, the student teachers felt uneasy to notice that the teacher did not master his/her area of substance matter:

The teacher of ... wind instrument playing should know profoundly the physiology of breathing and, more widely, the physiology of the whole people to be able to teach it to the students. This claim, at least when I myself am concerned, starts from knowing oneself and how one acts when breathing. If the teacher has never thought of and reflected on these questions, he/she can't teach them to anybody. (MM)

The same person could, luckily, observe another teacher as well and gain both stuff for reflection and inspiration to his own teaching practice:

The singing teacher ... whom I observed most of all was very confirming.

It is exciting to ponder why I felt so. First, she herself is a good singer, performed often as a soloist abroad. Second, she was well aware of the techniques of singing and understood people. Thirdly, she was clearly a born teacher. ... Observing this kind of teacher was really pleasing and motivating. (MM)

It is evident that the common substance matter, common background in disciplines is important for teachers. There are many subject knowledge specific questions which can best be solved among the teachers with the same disciplinary background. But, as becomes evident from the quotations above, socialization into general teachership is equally important. It is a question, as if to say, of widening circles of which one circle is not enough. You have to be part of them all.

Pedagogical knowledge. Socialization is not the result of isolated individual effort, but is mediated by the dialogue in which there occurs collegial exchange, collaborative work and participation in a community of practice to develop a common language. In this sense the professional self is a collective self, not a charismatic individual self.

The traditional approach to teacher socialization is assigned to the pure science disciplines. Integrated science and science-technology-society courses, for instance, demand values and role patterns that are neither learned in science disciplines, neither during teacher education nor by the classroom experience. The new approach asks for a professional identity based on pedagogy rather than the esteem typical of disciplines.

It seems that teachers' immediate working contexts may play different roles. One school culture may expect the teacher to teach what is necessary for the standards imposed on the school, another may advocate respect for, e.g., differences, cooperative learning, and student-centred teaching. Teachers are socialized to teaching according to these, (often hidden) principles. Fruitful teacher-learner interaction is more likely to appear in the last mentioned cultures, although it is not totally absent from the other ones:

I wonder how strongly the teachers stressed knowing and teaching substance; I felt that how you teach was not appreciated at all. ... The most prominent impression was that going through the certain contents was the most important. ... There are many students that the teacher doesn't even get to know, if they do not come to the lectures and participate in the lessons actively. (AA)

On the other hand, the student centred interaction culture became evident in many observations:

I noticed that it was useful for students and me to arrange a learning styles test to define the collective style of the group. ... Observation practice in the schools offered good ground to examine different teaching styles and different groups. ... the picture of teachership is built ... and influenced by my own learning experiences, observations on other teachers' teaching ... by the discussions and observations during the practice. My own preconception has been constructed of my own personality, values, earlier experiences and knowledge which have been modified by new experiences and new occupational knowledge as well as new learning conception with its values and modern (teacher) lessons in their own way. From them I learnt what the students would want. The lessons were interesting ... Perhaps through them I learnt most of the young people's experiences of the world at the moment... I also noticed that the students learn in different ways, one by experiencing, another by reading, the third via teacher lecturing... The fact that in the classroom there are ... analytic students who need exact and short knowledge, but also the other learning styles are surely an eternal problem to the teacher. (AJ)

The quotation also tells how the contents of the teacher education program hitherto studied have started to disseminate the observations and widen the perspectives of the student teacher in the aspects of learning styles and strategies, of the importance of life histories and learning conceptions.

The general atmosphere/ climate in the lessons is important. Behind the psychological climate there are many things of which all are not due to teachers. But some will surely be. One of them is the teacher beliefs and expectations on students in general and on students' capacity to pass the exams well in special. (Meighan et al 1993). As appears in the quotation above, the beliefs can change: beliefs are a relevant part of teachers' practical knowledge and, to develop it, it is important to make teachers and student teachers reflect on them. As to interactive patterns, they can be learnt and changed as well. They often develop along with teaching methods or the growing self-confidence of the teachers:

Young and adults are, above all, critical concerning the appreciation and emotional attitude of the teachers... Criticalness is based on their experiences on how the teachers approach the individuals and groups. ... The student groups are active and energetic. There is potential in them, and the teacher should become sensitive to avail of that potential. (TL)

The teacher must have self respect, otherwise he/she cannot get along. The teacher who is in balance, knows him/herself, can evaluate and reflect on his/her action, has tendency and desire to develop. ... I get enthusiastic easily and want to act fully. ... I need more experience (in teaching) to be able to encourage the students in the best possible way. (AR)

The teacher character and personality qualities will be dealt with in more detail later in this chapter. Here only a few remarks which refer to interaction modes, but are connected to personalities as well:

I observed the working of five teachers and four student groups. All groups gave the impression of being motivated. The lessons were interactive, and the students told openly of their own experiences. Especially adult students were active. Teachers shared with the students even personal things. ... The teachers were present as personalities, not only as distributors of knowledge but also in sharing feelings and experiences.(SV)

Communication. In society, in general, there is a growing demand for people capable of working cooperatively. It should be evident also in schools. However, many teachers never experience group processes and cannot systematically diagnose and manage them. To prevent this kind of inability in the future, many teacher education programs have started to include group processes in their teaching as well as use the common term of a 'learner' to designate both teachers and students. Very often semantical changes precede ideological and methodological ones: this change of denomination is expected to bring the change of seeing students as collaborative persons in the classroom.

Research on cooperative learning, from constructivist point of view, suggests that meaning is constructed flexibly through negotiation and collaboration with others in which multiple perspectives are exposed (Brown 1989). How can teachers develop skills of collaboration in a community of students and teachers as learners? In addition to peer-tutoring, reflection, sharing and caring and didactic support, they need a common language to talk about the processes.

A common language between various groups of learners is important. Professionalism presupposes a professional language which represents knowledge shared with the members. Why is it difficult for teachers to achieve the standard of common professional language and make it commonly used, with student teachers and even with (at least adult) learners?

There is, however, a wide repertoire of nonverbal communication which is understood immediately in the classrooms, whether used by teachers, students or student teachers, in one word, by learners. An asset of common understanding, availing of both verbal and nonverbal communication, which brings into the picture often a contrasting or exceptional point of view, is good humour:

I noticed that humour was primarily important in raising interaction between the students and teacher. ... A good teacher changes quickly his/her role from teacher-centred performance to a consultant and active leader. (KV)

Intuitive learning and learning from the teacher's nonverbal behaviour and attitude was observed in many reports:

It has been stated that Finnish students pass their school learning primarily with the support of their cognitive action domains, and affective expressions and humour is practiced only little in teaching. ... In the teaching occasion the interaction between the teacher and students usually happens through verbal and non-verbal communication. (KL)

Even bodily, non-verbal communication was observed and reflected:

On the domain of interactive and communicative skills I noticed how a teacher used very strong bodily expressions. It was positive colouring of a story, like a mini-drama. On the occasion the method was lecturing. I think that strong non-verbal communication made the lecture interesting. (JA)

The person quoted above also states that it is the communication skills that are concerned in giving instructions and explanations. She tells that when the tutor teacher had not been clear enough in expressing the instructions of the group work in the previous lesson, it was difficult to continue teaching in the next lesson, which she had got as her task to do. She tried to guess what the teacher possibly had meant to say, and in this way everything succeeded at last.

A relatively common observation seemed to be the lack of real verbal communication: "Two-way communication between the teacher and the students is scarce." (KL) The most important means in teacher behaviour, however, whether verbal or non-verbal, according to many teacher interviews is being true to oneself. It means being in harmony as to nonverbal and verbal communication, being true, not a pretender, and being good at human relations skills:

Young people are impossible to be cheated... you have to be true.
You have to fulfil your position by being a strict adult. (TL)

The teacher needs human relations skills in his/her work daily. ... For instance a married female student burst crying all of a sudden in the lesson. The teacher asked what was the matter. The student told that her husband was recently taken to hospital because of apoplectic stroke. ... The matter was discussed immediately in the presence of all students. Thus no one had to try to guess what had happened. (JA)

Classroom control. In the observation process of making the implicit standards of practice explicit, the student teachers valued the teacher's ability to keep the class in control. When observing the interaction, they found the world which was not always perfect. Along with the changes of society, the students have changed in many ways, and teachers are supposed to make substantial changes in their professional roles and identity.

I also thought of the role of a vocational teacher, of myself, as an educator? How can I bring up adults, over 18- year-old students? I observed in the lessons how the role of an educator was seen at work. How did teachers react to the students' swearing or being late for lessons? Especially, they were late in crowds for the early morning lessons. To my disappointment I noticed that often the teachers didn't react in any way to those situations. Could I as a teacher let these students to the working life with good conscience? Although the teacher's task in upbringing is emphasised in the comprehensive school, I think that the teacher of a vocational school is an educator who takes care of upbringing, too. (MH)

Vocational teacher students are not worried about their substance skills in teaching, but, instead, being able to control the groups draws constant attention: The teacher stopped the situations of disturbance once they had begun. So they could not be spreaded (A-KK)

In the class there was peace for working, the students took responsibility for their own learning... the teacher needed not to be lurking whether the students worked or not. ...She acted as a guide and organiser and, above all, an encourager. ... I was really doubtful ... My feelings are now very controversial... after the years in the comprehensive school it gave... hope to notice other kinds of circumstances of teaching. (HL)

Action repertoires are highly condensed cognitive and motor structures, which allow action without delay in complex situations. Well formed action repertoires are important in professional behaviour. (Bauer et al 1996.) It sums up the above described dimensions: (1-2) social structures of disciplines and pedagogy, (3) interacting, (4) communicating and (5) classroom control as a part of action repertoire. The dimensions of the so called background work are very essential in professional development. Teachers are free to develop and mould the subject area contents for the classroom/ lecture use. They can make decisions about timing, test and revise their teaching material. Teaching methodology is thus one of the components of action repertoire.

Teaching methods. Background work is used for planning and production done before the beginning of the lesson. The effects are cumulative, for instance the hand-outs are filled in during the lesson and the result is something for the learner to be acquired. Background work facilitates the classroom interaction, and the material which is accessible at any time is essential for efficient use of energy.

Action repertoires of teaching methodology are prerequisites for effective educational behaviour in all times, especially under pressure. Action repertoires are activated, when a teacher has a goal to achieve, and he/she has to interpret teaching situations to make the aims and methods parallel. To be able to interpret the situation accordingly, the teacher has all the characteristics of educational professionalism present (figure 9). To have a more or less elaborate action repertoire for the active professional use, a teacher needs, on the side of practical teaching methods, also internalized knowledge of the goals as well as of values to which the goals are linked. They need also evaluation and reflection skills in addition to the dimensions mentioned before. All the acquired skills are tested in practice:

In some groups there were mixed skills students: there were adult students who had lower background education than the most of students. ... This required special arrangements from the teachers and careful planning of timetables. Heterogeneous groups were characteristic of the programs. (SL)

Motivation skills are crucial in all teaching, in teaching mixed abilities groups especially. The ability to motivate is connected to the teacher personality on one hand, to the methodological skills on the other. Moreover, the teacher needs psychological knowledge and intuition to find the ways attractive just for the target group:

The teacher's skill to motivate students became concrete to myself during the observation of lessons. I saw situations in which students were not motivated at all. I wondered what was the reason for that. I don't know if I am right, but some reasons I found. First, the learning goals were not introduced. ... Secondly, the methodological choices made the students sometimes embarrassed. They didn't understand why they had to do as they were told. One more reason I think was the young age of the students. .. In the groups which consisted of adult learners the activation and motivation level was high.(JA)

Action repertoires and, more specifically, the teaching methods have a connection to teacher thinking and the teacher's conception of learning, learners and situations. Teachers are often blamed for their out-of-date teaching methods. Professional self often arises from the critical preoccupation with one's own incompleteness which has been recognized. But there is danger of accepting incompleteness and, instead, blaming external circumstances for it. Another danger is to deny incompleteness.

More or less conscious views of a student as a customer seem to prevail, in particular on the polytechnic level. The teachers see as their most important task to guide the students to the source of information, and the duties of the teachers are connected to this basic view.

... The teacher is entitled to make his/her own decisions concerning the teaching methods. ...The teacher's task in the department is to keep his/her substance skills up-to-date and guide students to the source of information.(KM)

The teachers need courage to collect feedback about their teaching and confront that. How is it possible to realise that practice? One idea is to create collaboration or multi-subject projects in which teacher can discuss and test teaching ideas and discuss them with colleagues. Another is to accept student teachers to the class as observers and discourse partners.

The aims and values explicated in teaching were not written explicitly about in the reports, though they were understood to be implicitly behind the observations of teaching method choices. Awareness of them is, however, important. Supposedly, in this phase of teacher education it does not seem to be a great concern of reflection. In the following quotation a student teacher reflects on teacher responsibility and wielding of power:

During the practice I often pondered on the teacher responsibility and wielding of power, especially on the responsibility. Vocational teachers teach young persons, most of whom study for the first vocation of their lives. The students

spend time and money on their studies, so it matters what level education they will get for the future. Therefore, as a teacher, I should ascertain the necessary up-to-date vocational skills and qualifications to be demanded in working life. (MH).

The student teachers reflected more on the means of realizing aims and goals:

On all levels of education, the teacher seems to have relatively great chances - he/she is allowed to decide how to read the aims of the curriculum. The teacher seems to be an autonomous entrepreneur in his/her classroom. (TL)

Observing both the lessons and the oral exam on the same theme gave me a good picture of the contents and implementation of the course, as well as of the evaluation. ...I was allowed to get to know a new way of approaching and carrying out language teaching. ... Teaching languages in the polytechnic does not seem to be actual language teaching, but rather preparing the students to using language skills as a tool in their own vocations. ... the demands concerning my substance skills as well as making learning material and planning courses feel frightening. It really presupposes different pedagogical skills and knowing compared to those in the comprehensive school or in the senior secondary. (HL)

The fact that student teachers did not reflect on values and aims, but instead devoted pages to teaching methodology observations, reveal that in pedagogical matters they are novices: they do not concentrate on the destination but on the means of getting there. The more they grow in profession the more will they think of the values and aims. When the methods become self-evident, they need not so much attention any more.

The student teachers were contrasting the traditional teacher-directed method which appeared as lecturing, showing too many transparencies and giving no or little attention to student reactions, and the modern learner-centred way of approaching the subject. The traditional ways were observed in the following way:

Speaking and showing transparencies is, unfortunately, the most common way of working in schools even this day. The students write “with their pens steaming”, so that they have only time to copy the information from the transparencies on paper. .. Being in the role of a true learner is the most effective way of learning about bad pedagogy. ... The teacher’s only problem is not to choose the method suitable in the learning situation and to master it in practice. They must be varied from time to time.... The teacher must have the skill to influence on the motivation by his/ her choices. (KL)

The inquiring style was exerted with a disastrous “success”: the teacher demanded the answers from one student at a time as long as she got them. (AB)

Enthusiastic with the constructivism I had high expectations concerning teaching methods and fringe approaches – in vain. I lived in a kind of world of

utopias... The students obviously desired different alternatives and small refreshing moments... but in the lessons the teacher had no need for continuous shows. What was evident was a kind of synthesis between the old and new. But in the observed lessons ... their stunning effect was really alarming! I had forgotten how it feels to try to keep awake in the lessons. ... On the other hand I noticed that no single teaching method makes learning stunning. (TL)

The more modern approaches were praised:

A learner-centred lesson ... the students were asked in groups of three to plan and carry out a guidance situation. ... In addition theory was taught using cooperative methods. All the class participated in all the tasks either as guides or the members of the group. There was plenty of meaningful action. If there were disturbances, the teacher caught them at once, so that they didn't widen out. I think the students really learnt. Participation was active. (A-KK)

I found that the common feature of all the teachers was a kind of self reliance. ...It was evident that the teacher reacted to different (verbal or nonverbal) messages by changing the teaching method. When the students became restless, the teacher changed lecturing into questions to students, or raised the interest of the students again in some other way. The method was to such an extent flexible and sensitive that realising it as an observer took time. Everything functioned so smoothly that I suspected the teachers acting intuitively in these changes of methods. (AP)

A teacher student who observed teaching in three educational units: lessons of mathematics and languages in adult evening classes, of process engineering in the technical college and of gynaecology in the department of medicine in university writes of the medical department:

... problem based learning is carried out in the clinical phase (in medicine). Teacher directed lectures have been decreased into the fourth of what it was earlier and have been changed into PBL. The course consists also of other teaching to groups, and... clinical work. ...teaching and learning have changed totally. Studying resembles medical practice more, and teachers and students are motivated. Motivation and learning take place in the genuine context. ... Learning is evaluated by an exam which consists of a medical case. ... according to the persons interviewed, beginning with the PBL needs a lot of work and organisation. ... The students are given more responsibility for their learning. ... They learn faster to notice the essential things in examining the patients. (AA)

Action repertoires and the mastery of teaching methods are linked with the understanding of cases and ability to control the activities. They are also links between the ideal self and the claims of the introduced critical observer. They are part of the resources the self can rely on in order to become a professionally competent person. Repertoires arise through gradual practice on the basis of feedback and so can be developed systematically. Their usefulness can only be

experienced in real situations and thus a positive and realistic perception of a situation is important. Such capabilities do not develop in isolation.

Personality. Most scientific approaches to good teaching emphasize aspects of good teaching or teacher performance in terms of teacher characteristics leading to better student achievement. Attention has already been paid to teachers' practical knowledge and how student teachers are introduced to it. In this chapter the focus is on teacher personality. It is said that all kinds of teacher types can be good teachers. In other words there are many kinds of teachers who experience job satisfaction, and who are appreciated and liked by students. Or is there some "heroic element" in teaching which Bereiter and Scardamalia (1993) speak about?

The student teachers observing teachers and the interaction habits made notions of the characteristics of the interaction situations and especially of the teacher's role in them. They tried to collect the qualities that a good teacher needs in encountering the groups of students. It appeared that the teachers with experience in teaching and feeling satisfaction with the job were outstanding.

This ability of teachers seems to be learned cumulatively from experience. Their development can be considered as a result of learning from experiences, but based on reflection on (and in) action (Schön 1983), and, supposedly, on enhanced reflection using external sources of information to base decisions on. The student teachers were not too well equipped to analyse deeply the characteristics which they thought were of vital importance. They stated generally that

I learnt ... that the teacher needs human relations skills daily. I came across some unusual situation which made the notions concrete to me. (JA)

The teachers were present also as personalities. ... The students appreciate also their teachers' experience. (SV)

The appreciation of experience was expressed in many reports, the next two quotations as examples:

I really admire my tutor teacher's maturity and skills that I know come only through experience. .. The teacher in her self-assured and calm style could manage in any kinds of situations (TK)

Certain self assurance was observed in all teachers ... the sense of control? The teachers were ... clearly satisfied with their job ... they had straight and fair style (AP)

Other qualities noticed were connected to the attitude of teachers to teaching and students. Such were for instance humour and enthusiasm:

I want to develop as a teacher myself ... my own enthusiasm often takes my students along (TH)

The atmosphere in the lessons is important ... it depends a lot on the teacher ... concentration and relaxation are attained only through freedom and also through humour (MM)

Some student teachers compare themselves with experienced teachers and noticed, sometimes in despair, that they have still a long way to go:

On one hand I have started to get more self-respect, and hope that it will increase with the experiences of success. However, I am still sometimes too sensitive to critique, although the critical comments were justified (TK)

The teacher must be a many-sided person (besides giving lessons be capable of other things as well). My own mind has filled the sense of not being enough ... but I am able to learn. (MN)

A consolation to many student teachers is the notion that the foremost characteristic in teacher personalities is that of not being false, of being honest also in the way he/she is a teacher:

Every teacher works in his/her own style (AR, TS, TL)

...during the practice period I observed the teachers quite in a new way, with the aim to observe different teacher personalities. ... perhaps the most important thing is to be honestly oneself with deficits and imperfections ... (HM)

4.3.4 Summary of Socialization into School and Teacher Cultures

It becomes clear from the quotations above that the student teachers, in the introduction phase to their supervised teaching practice, *see teaching as acts*. They are not concerned as much with the goals and aims, but, instead, through their experiences they chart the way to them. They emphasize acts and phenomena around them.

According to the Aristotelian tradition, teaching is a moral act, complex of many issues including practical wisdom, related to the contexts and situations through the individuality and personality of the teacher. The practice of teaching means understanding concrete cases and unique situations which are formulated in context-related terms. The value base of teaching is found in its aims, goals and objectives usually stated in the curriculum. To these values the teacher and students bring their own values and personalities in the teaching-learning process. This process is the core of implicit theories that inservice teachers have, while the viewpoint of preservice teachers of this study is less elaborated.

Teachers work with different aims and goals directing their action (cf. Kansanen 1993), since making educational decisions generally means selecting

between different alternatives. The selecting itself is conscious, but the level of consciousness may differ from clearly motivated decisions to almost unconscious selection based on some kind of personal belief system.

The student teachers' observations *left many things unspoken*. Earlier it was stated that they didn't say anything about 1) the gender issue. They didn't either pay attention to 2) multicultural problems, with the exception of one short comment of the difficulty of teaching classes of students from multicultural origins. The situations where a teacher had difficulties in deciding how to deal with the conflicts with students: 3) to punish or not to punish were reported so that the teacher omitted the cases. The student teachers reflected on the reason for the choice and came to the conclusion that it might have depended on their presence. They were puzzled, they would have wanted to get advice how to act in the similar cases later on.

About the cases of *confidentiality* the student teacher noticed that it was very skilful from the teacher to be able to deal with problematic cases on the spot. Surely these were only exceptional examples, the confidential matters which were talked about in public. Confidential things are normally dealt with confidentially. The law even demands it.

The cases illustrated above show that teachers need not only to develop professional technical skills but themselves as persons as well. The understanding of situations must be construed on personal levels. *Developing personal and professional self* is thus the heart of the quality and standards of teaching and a continuing challenge. Immersing into the aims, structures, arrangements and working communities of professional people pursuing the same objectives creates a good opportunity of socializing to the student teachers. They are not the first time "socializers", they are, as the second and third career student teachers, specialists in the fields other than teaching. Despite that, their observations show that in the core questions of teaching they are novices.

How can socialization foster a teacher's professional development based on self-development? It is supposed that *integrated forms of teacher education*, social constructivist epistemologies of science, and the tacit influence of teaching practice can have such an effect. Teacher professionalism that primarily depends on the notion of a discipline derives its strengths through its close relationship to existing norms and practices. On the other hand, this professionalism inhibits curricular innovations, such as the multi-subject vocational teacher education now studied that looks beyond the single disciplines. It has emerged from an increasing awareness of the inter-relatedness of multi-subject teaching in a post-modern cultural framework. The large framework can provide a setting for meaningful learning. The current institutional pressures, however, are strong and support self-perpetration of power and professional esteem. A new framework which is being tried for incorporating socialization into the professional

development of vocational teachers is necessary to give a better chance to meet the students' needs.

New ways of learning and pedagogical reflection of teaching are being tried out and provide alternative experiences in the classrooms and in professional development programs. While the settings are being reformed, it is likely that the functions in these setting can change. The more the teaching steps out from the traditional framework, the more is teachers' personal repertoire of skills, attitudes and collaborative readiness in the focus. Consequently, in teacher education, the *attitudes and interactive skills* of teachers must be paid attention to as well as encouraged and enhanced the sharing of experiences and collegiality in collective contexts. It is the attitudes that are central in the socialization process into teaching profession, and they are adopted often tacitly via learning practical knowledge.

4.4 Student Teachers' Self-concepts

Recently there has been an increased interest in how the teacher's self is constructed and re-constructed through the social interactions which teachers have in particular in socio-cultural, historical, and institutional contexts. The search for understanding teacher identity requires the connection of emotion with self-knowledge. Including emotion in the way of looking at teacher identity reflects a concern with the role of emotion in identity formation and change. It also reflects an interest in how social constructs such as individual and group identity in teaching create and maintain certain ideas about teachers' emotions. (Nias 1989, Kelchtermans 1996, Little 1996, Zembylas 2003.)

The construction of teacher identity is in essence affective and is dependent upon power and agency. An investigation of the emotional components of teacher identity yields a richer understanding of the teacher self. Thus, investigating how teachers' emotions can become sites of resistance and self-transformation suggests attention to both the multiplicities and complexities of teacher identity and the situatedness of emotions. (Kelchtermans 1996.) The following figure illustrates how emotions are indispensable for rationality. Change in perspective happens through a combination of emotions, cognitive thought and the unconscious. It has been claimed that successful learning – as well as constructing identity – can only occur if all four modes of human psyche are addressed (affective, imaginal/ perceptual, cognitive/ conceptual, practical). (cf. Kasl & Yorks 2002.) The following figure presents successful learning modes with the perceptual combined to the cognitive. The reason for combination in the present study is that the material consists of reflected descriptions. Thus the perceptions of student teachers are interpreted through cognitive structures twice: first in the expressions of student teachers and then in the analysis of the researcher.

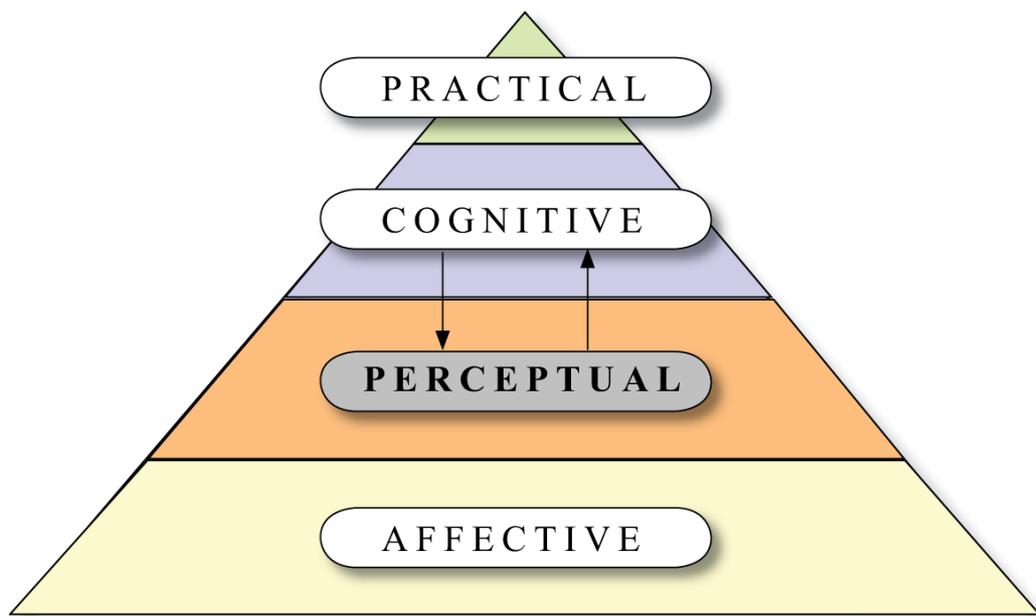


Figure10. The role of four modes of learning and identity formation. (Modified from Kasl & York 2002.)

Traditional dichotomies suggest that there is a difference between private – public –dimensions. That view is avoided in the present study. Also the assumptions that there is a singular ‘teacher self’ and an essential ‘teacher identity’, as implied in popular cultural myths about teaching, will be challenged. Instead, several approaches to the topic are intertwined: developmental research (Erickson 1968), socio-cultural approaches (Vygotsky 1982), and post-structuralist approaches (e.g. Bhaba 1987). Erickson included both individual and socio-contextual dimensions and emphasized identity as a subjective sense of sameness and continuity (Erickson 1968, 19). Vygotsky claimed that the specific structures and processes of individual functioning can be traced to the developmental precursors on the group plane, and the post-structuralist view opens up a space between self-consciousness and the interrogation of the affective conditions of a claim to identity (Bhaba 1987).

Researchers, like Deleuze and Guattari (1987), are concerned with how identities are constantly ‘becoming’, how they are constantly re-defined. It suggests the incompleteness of identity and a dynamic identity construction. Narrative stories of teacher lives provide accounts for dynamic interpersonal identity constructions that blur the boundaries between the personal versus social character of identity formation. This dynamic process emphasizes its affective character by providing meaning to experiences. Thus not only are emotions central in identity formation, but our understanding of its role is complicated by the multiplicity of emotions which are likely to be experienced.

Seen from another point, there is also reason to believe that specific self-views influence people's cognitive responses to e.g. success and failure in life, while the global self-esteem influences people's emotional responses. Thus specific self-views would predict what the persons in question thought about their performance, but global self-esteem would predict how they felt about their performance. (Dutton & Brown 1997.)

A teacher's professional self can also be seen as the outcome of a self-organising process in which personal impulses and a desired picture of a self are balanced. The context in which this self develops is related to the structure of the educational system, which gives teachers more or less professional freedom and authority. A dynamic identity construction does not, however, preclude the existence of particular traits in a person. On the contrary, the explorations try to reveal how different emotions may interact and produce emotional behaviour that is different from what is normally expected. It is also suggested that the unity, predictability and stability of identity are illusions.

4.4.1 Self-concept and Identity

An individual's self-concept is his/her perception of him/herself. It contains perceptions relating to standards of characteristics such as traits, competencies, values, beliefs, attitudes that the person has internalised. These internalised standards of self-concept make up who the person is, and will influence how they interpret stimuli and behave in response to these. The self-concept of an individual is a determinant of the outcome they will seek to attain which will satisfy them. (Leonard, Beauvais & Scholl 1995.)

Identity theories argue that values are cohesive forces within personal identity. Conceptualizing values as the core of one's personal identity leads toward understanding the cohesion experienced among one's various social identities. Values arrayed along the dimensions of self-enhancement and self-transcendence illustrate how a values-based conception of personal identity influences formation of a role identity. (see also Hitlin 2003.) Role identities, in turn, form the so-called sub-identities.

It is agreed, though, that a self-concept is a highly individualised conceptualization formed through selected internalisation resulting from experiences throughout life and interactions with others (Wood & Bandura 1989). This suggests that which was already discussed: others can affect the self-concept of an individual. Because an individual's self-concept influences how they interpret stimuli, it subsequently influences the affirmation or enhancing of their self-concept through identification and internalisation. Identification is a perception of oneness with another individual which provides a system for self-reference. Internalisation involves the individual adopting characteristics of the person with whom they have identified as the basis of their ideal self. (Ashforth

& Mael 1989.) Thus both identification and internalisation can result from the influence of an external stimulus, for instance of foreign experience. Only by becoming aware of his/her own otherness makes it emotionally possible to meet other people. (Kristeva 1992, 196, Levinas 1996.) It also presupposes the cognitive understanding of the other's emotion and the meta-understanding of the whole situation.

According to the social identity theory a person has not one "personal self", but several selves that correspond to widening circles of group members. Different social contexts may trigger an individual to think, feel and act on the basis of his/her personal, family or national "level of self", Apart from the "level of self", an individual has multiple social identities. Social identity is the individual's self-concept derived from perceived membership of social groups. (Hogg & Vaughan 2002.) This can be distinguished from the personal identity which refers to self-knowledge that derives from the individual's unique attributes. To the same refers the quest for positive distinctiveness, i.e. people understand that, although as members of a group they are defined as "we", but the definition of "I" is also possible.

The following chapters will examine self-concepts through the working self-concepts defined by student teachers. They will be linked with student teachers' reported perceptions of their observations of teachers and, hence, reflections of their future professional identities. The emotional in connection of self-analyses will form the outset of reporting. The modes of learning and identity (figure 10) will provide the frame for reporting.

4.4.2 *Working Self-concept*

Working self-concept is a mechanism that activates the identity by defining the standard to which a person compares him/herself. The specific domain in the working self-concept is activated by the triggers from the context or recent experiences. The one and same person can have self-concepts that are far from each other. They will be activated by the prompts that come from the social or physical environment or context and can be even contradictory to each other. The schemes of peripheral self-concepts will be activated only in specific contexts, core self-concepts appear in a wider choice of contexts. (Lord, Brown & Freiberg 1999, Ruohotie 2004.) For instance, a teacher's scheme, as an individual core self-concept, will be active in the situations of teaching, leading or being responsible for a group of people in various situations.

The working self-concept consists of three components: 1) self-views, 2) possible selves, and 3) goals and standards/ ideal self images (Lord et al. 1999). *Self-view* tells how a person sees him/herself in a certain context when comparing the demands of the situation and his/her capacities. *Possible self* defines what a person might be or become. Future expectations and fears are connected with the possible self image. Although future-oriented and

hypothetical, possible self image has a connection with the present and appears in motivation, activities and affections. *Goals and standards* are schemes that function in a certain context and direct information processing. They have a connection with motivation and self-regulation. In other words they create an ideal image of self to be attained. Actually, goals create standards to which an individual compares the feedback given to him/her. (Ruohotie 2004.)

The *control system* regulates the emotional state and motivation by comparing the feedback and the relevant standards with each other and reacting to the possible discrepancy. The control system can be linked to any combination of two components in which one defines the standard and the other offers feedback. (Ruohotie 2004.)

4.4.3 Professional self-concept

It is argued that a person is acting professionally in the occupation if he/ she develops an occupational self related to relevant values; has an extensive action repertoire for the fulfilment of tasks; communicates with members of the occupational group in a professional language; justifies actions by referring to the science of the profession; and takes personal responsibility for consequences of action in the sphere of influence (Bauer, Kopka, & Brindt 1996). The second or third career student teachers have already developed an identity in their respective occupational fields before coming to teacher education. For that reason they have self-esteem and working experiences from other fields which help them in constructing their self-concepts as novice teachers. As most of them are novices or beginners in their teaching career, the term 'teacher identity' is mainly avoided and, instead, the word 'self-concept' is used.

The described self-concepts (ideal/present/potential) were first categorized into the same categories as used previously (fig. 9), according to the thematic range of components in self-concepts:

- Personality
- Discipline
- Teaching methods
- Pedagogical knowledge & skills
- Communication skills
- Collegiality/ sharing ideas
- Classroom control.

In the following pages, though, the student teachers' statements will be arranged according to the modified psycho-analytical whole-person learning model in andragogy (see figure 10). In the applied model, the base level of learning is affective. Above it there are the cognitive and practical levels. Affective, cognitive and practical levels are connected to each other with many

ties. The student teachers' descriptions show a diligent interest in the features which are explained as personality traits. They were seen to be essential as background factors, though including affective, cognitive and practical features.

The reported ideal teacher images show the values and aims of student teachers. The descriptions were composed freely and imaginatively. Writing about ideal teacher traits is easier than the writing of the present and potential self-concepts. The latter themes link the attributes to realism. What is generally expected from a teacher is that he/ she has a realistic self image.

The next categories are composed so that 1) what the writers think are personality features are dealt with first, notwithstanding the fact that they are connected to one or more of the following categories. Under the title of *personality and the affective* there are personality traits and aspects which express emotion attitudes and are presented mainly as emphasizing the direction of emotion from the teacher towards the learners. 2) *The cognitive* is a comprehensive category including disciplinary and educational knowledge as well as the appearance and outcomes of 3) *emotional intelligence*. The latter, notwithstanding the fact that it consists of emotion and is connected to the affective, is here placed between the affective and the cognitive domains, since emotion in pedagogical interpersonal relationships is interpreted by subject persons through cognitive processes. Moreover, the writing process presupposes cognitive interpretation. 4) *The practical* consists of the concrete outcomes of disciplinary, educational and didactical knowledge, i.e. of teaching methods, communication, collegiality and classroom control skills which all have affective and cognitive background factors combined in the personality of the teacher.

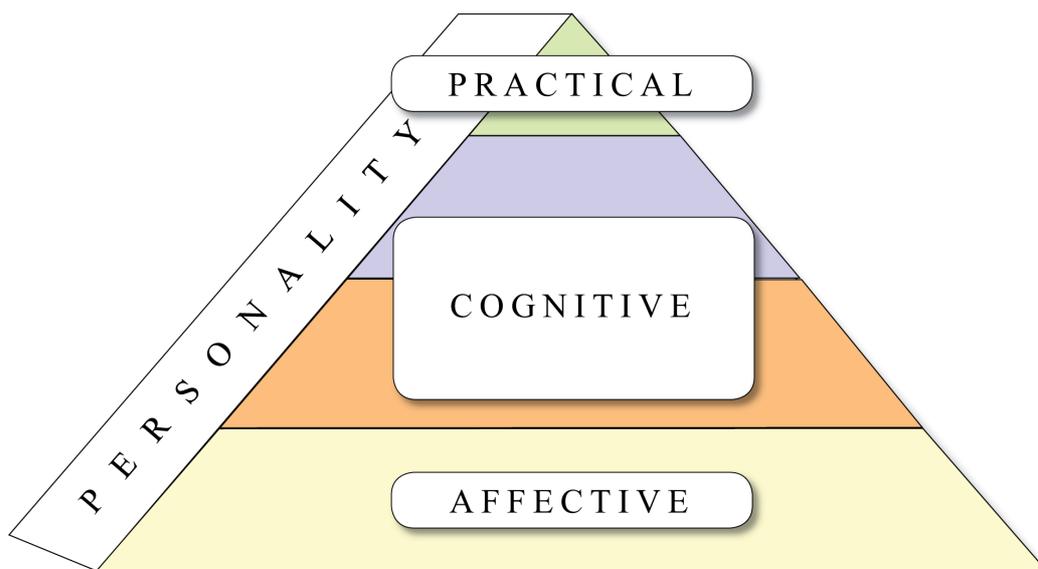


Figure 11. The organisation of the affective, cognitive and practical in personality in the present analyses.

4.4.4 *Personality and the Affective Domain*

A significant factor in the teaching profession is *personality*. Good teachers are said to have convincing personalities. Something undefined, hardly comprehensible and not teachable – the so called charisma of the personality - is central. This personal feature marks the professional self, the core of which is, supposedly, a hierarchy of values, goals and standards which the individual has developed in order to make decisions.

Ideal self-images can conceptualize particular core values and actions of professional identity by linking past, present and future experiences. In the present research material 32 student teachers use an ample choice of descriptions in expressing their views of an ideal teacher personality. The total sum of the descriptions is 182, including 110 different attributes or examples of ideal teachers. Compared to the student teachers' analyses of their present self-concepts (73 statements) and of their potential self-images (50 statements), the figures show how much easier it is to express aims and values than to compare them to their present or possible appearance.

The attributes were classified either as affective or cognitive depending on the context of their appearance, but the line between the categories is very delusive, indeed, since emotion/ the affective is present throughout the comments especially where interaction is concerned. On the other hand, cognition is present in naming the feelings, which always takes place in the writing process. The main aim here is to describe *teacher personality* first, since it was the foremost in the descriptions of an ideal teacher.

The student teachers' previous careers and identities are also supposed to influence and direct how their self-concepts as teachers, both ideal as well as self-views and potential selves, are constructed. Our lives unfold new situations, and contexts are interpreted, understood and subjectively incorporated as experiences. Eventually, the production and transformation of identities can be seen as a result of this lived process.

Orientation to a teacher's profession is said to start as early as in childhood. *Emotions* can be taught only through emotions. Knowles (1992, 127-129) believes that the experiences from home, home culture, personality traits, social skills and the role models of one's own teachers and significant others are important in the formation of professional identity. However, in teaching vocational secondary and tertiary students, the conscious priority is in the cognitive contents more often than in the affective. In stressing the intellectual and practical abilities of students and teachers, the emotions are often, unfortunately, marginalized in conscious behaviour.

"Emotion is an affective state of consciousness in which joy, sorrow, fear, hate, or the like is experienced, distinguished from cognitive and volitional states of consciousness" says the Dictionary of the English Language Emotions (1973, 467). Yet, emotions are multi-dimensional. An emotion concept typically evokes content pertaining to all aspects of experience: social, cognitive and physical. This complex content is organized as a more or less stable configuration. The richness of contents makes it difficult to categorize emotion/ affection rigidly. Thus the content of emotion concepts can best be described as scenarios. The scenario of ideal love described in Kövecses (1988) includes knowledge pertaining to social action, cognition, and physiology. These vary widely on the dimensions of abstraction and complexity of phasing. (Kövecses 2000.)

Feeling states have an irreducible and probably universal psychobiological basis that accounts for many similarities in the conceptualization of emotions. But they are also, in part, culturally determined. Emotion concepts are not monolithic but come in a variety of cultural models for each emotion. Languages vary in respect to whether their vocabularies of emotion terms are chiefly metaphoric or chiefly metonymic, or more or less elaborate and focused in one domain or another, i.e. in the domains of physiological experience, cognition, or social action. Figurative language including metaphor and metonymy contributes a great deal to the conceptualization of emotion concepts. Emotion language thus consists of much more than the names of emotions. The wide range of emotional experience requires us to describe these experiences by means of an equally wide range of linguistic expression. It follows that the study of emotional meaning is also more than the explication of the meaning of words naming emotions. (Wierzbicka 1995.)

LeDoux (1996) suggested concerning the role of conscious feelings in human emotions that "Emotions evolved not as conscious feelings, linguistically

differentiated or otherwise, but as brain states and bodily responses. The brain states and bodily responses are the fundamental facts of an emotion, and the conscious feelings are the frills that have added icing to the emotional cake” (ibid., 302). Notwithstanding the psychobiological viewpoints, the conscious feelings encoded in language are, on the contrary, constituted by a rich diversity of humanly relevant factors that are crucial aspects of the experience of human emotions; they include social, cognitive, and bodily factors, without which no truly human emotions are imaginable. They together provide the key constituents of the experience of emotion in human society for beings working under certain biological pressures with a particular brain and cognitive system for handling these pressures, communicating in language or otherwise under certain pragmatic conditions, and having a particular kind of body. (Kövecses 2000.) It is not really possible to take any one of these factors out from a comprehensive view of human emotions. They jointly define and constitute what we as human beings experience as emotion.

How does the domain of emotion/ the affective differ from other abstract domains in the conceptual system defined in that way? To start with, human relationships incorporate emotions, or are half emotions and half relationships themselves. The conceptualization of (1) *relationships* (love, friendship etc) differs from that of (2) *emotions* in that they are characterized by what are called complex systems and interactive relationships. The former (1) enables people to view complex abstract systems metaphorically as complex physical objects (relationships are ‘built’ or ‘need repair’), while the latter (2) provide a diametrically opposed way of comprehending the emotions, one in which people in an emotional state can ‘go crazy’ or ‘explode’ by an emotion. (Kövecses 2000.) In this light, emotion can be seen as creating a large interlocking and coherent system into which various domains of the mind neatly fit. Moreover, the bulk of our emotional experience is constituted by conscious feelings that derive from social, cognitive, bodily, and discourse-pragmatic factors. - The next passages will explicate a few examples of the personality traits and attributes referring to emotion in ideal teacher images as well as some metaphors and metonyms of the expressions.

Empathy, sympathy, tactfulness and tolerance are emotion attributes which are highly appreciated as personality traits of ideal teachers among adult student teachers. Tact can be even the body language expressed in teaching situations in which action is instantaneous and intertwined with the situation. Tactfulness presupposes becoming aware of the student’s subjective self as well as the teacher’s own self simultaneously. In the following example the writer speaks about empathy, sympathy, tactfulness and tolerance:

An ideal teacher has an empathetic attitude towards the students, he/she understands them. Students are different, and it is very important to notice it. An ideal teacher can take notice of the different abilities and interests that the students have in learning situations. He/she is positive. (AJ)

Sympathy and empathy are parts of emotion organisation. In affective empathy the skill of adjusting one's feelings is needed to meet, for instance, mourning people. Feeling provokes feeling. *Sympathy* can be described as a catching positive or negative feeling. The feeling is transmitted in interaction, for instance through facial expressions (Buber 1965). The interpretation of expressions is somewhat difficult, as it demands cognitive information. Expressions alone can't reveal the state of feelings. The triggers from the environment raise sympathy which has often been regarded a valuable and positive feeling. It is, however, sensitive to opposite feelings of anger, hatred and antipathy. That is because the sympathy is defined according to the needs of the person him/herself. In sympathy we reveal projections of our own feelings.

Empathy activates the whole person and is a holistic way of approaching another person, not only as a feeling person but also as a part of the current social organisation. It allows looking beyond the area of sympathy. According to Buber (1965, 97) an empathetic person always moves with his/her feelings to the point concerned. This means turning oneself into a part of the target. Empathy means two-way interaction which has influence on the interaction patterns of the participants:

My ideal teacher is a person who has strength to be genuine in all situations. Her personality does not fail in a pinch, but she allows her personality to be seen and heard. A genuine person ...allows all people be as they are...The ideal and basic demand is that a person is always trustworthy and tactful. (TK-K)

In the quotation above the writer appreciates a teacher's natural self-esteem which results in the esteem of learners and is understood as empathy towards the learners. Other important traits of an ideal teacher personality that were mentioned were: enjoying teaching, rightfulness, sense of humour, being social, interactive, caring and sensitive. There were also some notions on an ideal teacher's habitus, looks, way of living and charisma. The significant were, still, those concerning self-esteem, moral, empathy, tact, and positive leadership including the skill to motivate students. They will be dealt later in the connection of the cognitive mode of teaching.

The attributes and descriptions of the student teachers' *self-views* are on a realistic basis. It is to be expected, too, since the target group consists of second or third career adults. They tell they are empathetic, conscientious and rightful. They have sense of humour, they are open, innovative and ready to pedagogical experiments. There are individual differences in the self-evaluative lists: one is very modest and finds much to be learned in the new profession, another thinks very highly of herself.

I am not partial, and I notice that I become fond of them, feel great empathy and sympathy to all of them. (TK-K)

I want to walk with my students a passage of life together; spending time for it does not mean wasting time. I would like to be more flexible... A good teacher is courageous; I am such, too, but that kind of courage is still too hidden in me. (SK)

I treat all of my students impartially and equally. I don't have favourites. .. I always help my students in need. They can always ask for help. ... I think that a teacher must be demanding. ... I also accept diversity. ... The level of my morals is high. It helps in educating a student... I value traditions and good manners. I am honest, too. Those qualities were required from good teachers earlier. The teacher must be a model to others. I would think that I am able to do that, since I was brought up with love and discipline. (AS)

The first writer has a realistic self-view and self-esteem with the flavour of affection to the students, while the second writer is equally affectionate, but is shy and critical of himself. The third has an unrealistic conception of herself as a teacher. Having no teaching experiences and coming from working life and university further education has not given enough realism to her self view as a prospective teacher.

The qualities that student teachers thought they will *potentially* develop in themselves were in harmony with their ideal and present self-concepts. Each of them seemed to have adopted a few traits of personality which they thought might be possible to develop. Or they listed defects in themselves as persons:

In this phase of education, when I am stressed by work and studies, I find very many things to develop. (PH)

In interpersonal skills, tact and considerateness everybody must find something to be improved, whether they are going through any situation of life. I would hope to be a teacher who is easily contacted and who could observe all people as individuals. (PR)

Self-confidence as a teacher is something that they believe they will get in the course of time, as well as adopting the reflective attitude in the future. Creativeness, imagination, transformative approach and courage to take challenges were also mentioned. They will be studied more closely later. An interesting notion was that a person who had a long list of ideal features and a still longer list of positive self-view features did not mention anything to be developed in the future.

In empathy there are several continuities. The components of feeling are interrelated: cognition, physiology and kinaesthetic factors as well as those connected with perception (Kalliopuska 1994, 54). Both Kristeva (1992) and Stein (1964) emphasize that real empathy presupposes the foreign experience, for only after becoming aware of one's own otherness makes it possible to meet very different people.

Empathy and *self-esteem* are also intertwined. Kalliopuska (1994) claims that only the persons with sound self-esteem can adopt the other's role and see the situation from the other's point of view. Emotion, especially empathy (Hautamäki 1996) is the natural habitat of moral and ethics. Because teachership is strongly linked with a teacher's own identity, only the teacher who is conscious of him/herself and has self-esteem can stand for diversity, insecurity and get along with contradictions.

4.4.5 *Emotional Intelligence*

The line between the affective and cognitive domains is often unclear and dependent on the interpretation of the researcher. It is also the interpretation of the actor which decides the mode: if the emotions are interpreted consciously in the cognitive domain, they can also be classified as cognitive. In the above passage personality and emotion were linked together and their descriptions were examined from the point of the affective domain, although their naming and writing down required cognitive processing. In the following, the emotional and affective domains are observed through cognitive interpretations of the student teachers.

Emotional intelligence is according to Goleman (1995) an all-encompassing view that covers traits, values, personality, motivation, and character. He defines it as abilities such as being able to motivate oneself and persist in the face of frustrations; to control impulse and delay gratification; to regulate one's moods and keep distress from swamping the ability to think; to empathize and hope (1995). But is it really intelligence? Two thousand years ago Plato wrote in his *Symposion* and *Phaedros* (translated and edited in 1997) that all learning has an emotional base. In *Republic* he wrote that reason is the charioteer who holds the reigns of the horses (=emotion) and keeps them on the track. Thus learning could be seen a fusion of feeling, thinking and acting.

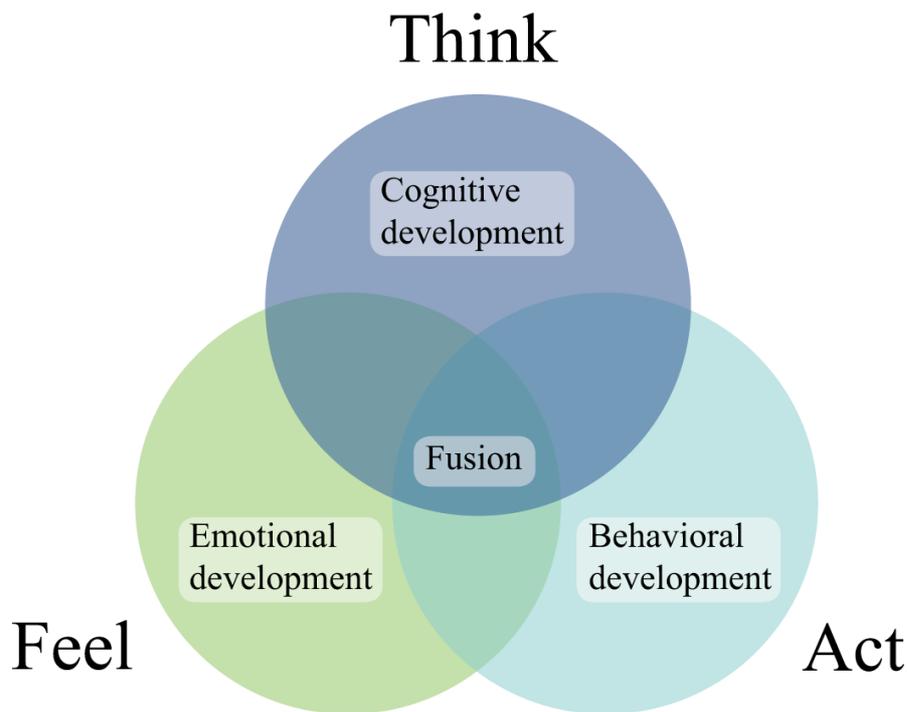


Figure 12. The fusion of emotion, cognition and action in learning.

There is an ongoing discussion about the origin and contents of emotional intelligence. Salovey and Mayer (1990) have defined it as the 1) ability to perceive emotions, 2) to access and generate emotions so as to assist thought, 3) to understand emotions and emotional knowledge, and 4) to reflectively regulate emotions so as to promote emotional and intellectual growth (1990). Caruso et al. (2002) wrote that it is very important to understand that emotional intelligence is not opposite of intelligence, it is not a triumph of heart over head, but it is the unique intersection of both (ibid.).

In 1997 Goleman sought to create a framework for teaching and practicing the skills of emotional intelligence and defined it as the capacities to create optimal results in the relations with oneself and others. Antonio Damasio (1994) claimed that our sense of being conscious comes from emotion. He continued that it is artificial to separate thinking and feeling. Reuven Bar-On (1997) opposed to Salovey/ Mayer's (1990) explanations claiming that they relate to a specific set of emotional abilities and a potential for behaviour (=emotional intelligence) and focused, instead, on emotional and social functioning or behaviour (= emotionally and socially intelligent behaviour). The creators of Q-Metrics (Emotional Quotience), Orioli et al. (1999) as a representative, say that having a capacity or skill is not enough to create real-world results. She claims that values dictate how people spend their time and resources. If people are taught in a vacuum, without relating them to their values and belief system, there is no real benefit in behaviour. (Orioli et al. 1999.)

The above definitions can be combined in the following table:

Table 4. Comparison between some significant definitions of emotional intelligence.

	Self-Awareness	Self-Management	Self-Direction
Salovey, Mayer, Caruso	Perceive Understand	Regulate	Generate
Six Seconds (Goleman/ Freedman 1997)	Know Yourself	Choose Yourself	Give Yourself
Bar-On	Intrapersonal	Interpersonal General Mood Stress Management	Adaptability
Q-Metricks (Orioli etc)	Sense	Understand	Apply

There appear to be five areas derivable from the above table which can also be assessed:

- Intrapersonal / the state of awareness
- Interpersonal / relationships with other people
- Stress Management/ problem solving
- Adaptability/ stress tolerance
- General Mood/ happiness

When reduced into four areas according to Mayer – Salovey (1997) the further definitions of emotional intelligence appear as following:

- Identifying Emotions – the ability to recognise how you and those around you are feeling
- Using Emotions to Facilitate Thought – the ability to generate an emotion and then reason with this emotion
- Understanding Emotions – the ability to understand complex emotions and emotional “chains”, how emotions transit from one stage to another.
- Managing Emotions – the ability which allows you to manage emotions in your self and in others

Emotional intelligence must somehow combine two out of the three states of mind: cognition and affect, or intelligence and emotion. People can be taught to employ some model to assist them in integrating of emotion and thinking in their daily lives. They can, for instance, ask themselves questions:

- 1) How do I feel? How does the other person feel? (=Identifying emotions)
- 2) Is the mood helpful? Does it focus on attention, motivate us, or blind us? (= Using emotions to facilitate thought)
- 3) Why do I feel this way? Why does the other person feel in his/her way? How will we feel? (= Understanding emotions)
- 4) Do the decision and actions include emotional and logical data to achieve an adaptive outcome? (= Managing emotions). (Mayer – Salovey – Caruso 2000.)

The above questions were given, in a form modified to school contexts, to the student teachers to help their personal journal writing. The guiding questions were: What seemed to happen in the situation? What did I do? How did the others act? What was successful/ less successful? Why? What made me feel happy? What made me feel angry? How will my way of being a teacher influence on the students? Why do I think so? How should the things go in the next time? -The students were asked to think of the questions and answers daily, write down their short notes immediately, and reflect on them as often as possible.

In the following the results of the analyses of self images concerning the cognitive domain with border-line cases of affective domain will be reported in explaining first the ideal self-concepts and then self-views and potential self-concepts.

4.4.6 *The Cognitive Domain*

The decision that certain personality features, when referring also to the affective domain, are placed into the category of the cognitive domain is due to the level of awareness in student teachers' interpretations or resulting action. Thus the attributes which are partly the same as those mentioned in the affective domain are now examined as conscious components of self-image and/or, especially, as outcomes of emotional intelligence.

Moral actions are linked to emotions, since they presuppose emotions. Moral needs empathy to be able to develop (Hautamäki 1996). In writing of their *ideal* teacher characteristics, the second and third career student teachers find the professional moral values very important:

The most important feature of an ideal teacher is ...absolute rightfulness. The students are entitled to become justly and equally treated. The teacher will be forgiven many defects, if he/she only is reliable and students know that he/she acts in a rightful way. ... Empathy is, of course, expected from an ideal teacher, like from everyone who works with other people. ... My ideal teacher expects the learners to get involved in learning, doing the tasks, and keeping to the agreed timetables. (HH-S)

In describing justice Rawls (1988, 68) understands fair play as people's willingness to share each other's fate. An ideal teacher is rightful, fair, impartial, punctual, honest, trustworthy, has clear values and aims and can act as a role model.

...An ideal teacher supports the students when needed. He/she encourages the students to study and takes efforts to explain if there is something the students didn't understand. In other words he/she evaluates his/her teaching. An ideal teacher explains the contents clearly, is enthusiastic, doesn't try to make students afraid of difficult learning objects. ... An ideal teacher

appreciates students and listens to their opinions. (AJ)

Taking care of the learners through strengthening them can be understood as breaking the traditional roles of teachers and students. The teacher changes his/her role, by giving up authority, into that of an encourager and initiator. This demands freedom from prejudice from a teacher and student. Only in equal meeting of a student and teacher is it possible to guide the student to find his/her strengths, his/her will and identity.

...I trust students and rely that they learn in their own ways, and I can support them as individuals. I don't make them believe that I know all, but I am able to admit my defects and I want to find challenges in my teaching. I take note of every student and help every one of them.(TK-K)

A teacher who is culturally oriented and understands otherness is able to accept diversity genuinely. Tolerance also requires courage and ability to endure stress. Empathy helps to tolerate, even appreciate diversity and human qualities. In empathetic interaction openness, safeness and trust are transmitted to the learner.

Critical self-evaluation can be understood as a teacher's professional way to alter his/her conceptions and behaviour. To create a new understanding of his/her behaviour the teacher has to observe and evaluate his/her action with an outsider's eyes. Many student teachers say that they have found their strengths.

Self-esteem was mentioned as the attribute of an ideal teacher in all student teacher's writings concerning ideal teacher personality. Connected with them there were a few statements of an ideal teacher's ability to critical self-evaluation. They also included criticalness in general:

My ideal teacher ... trusts him/herself and his/her competence. This does not mean that he/she has to know everything, but if needed he/she is ready to confess that he/she does not know everything and is willing to learn more.... If something failed in the lesson..., he/she wouldn't hide himself out of sight, but reflect on the process, evaluate his/her actions and think what he could do in another way the next time not to repeat the mistake. Then he/she would go on living in a happy mood. (TK)

Second and third career student teachers, to become good teachers, should know their stories. Bruner (1996) claims that to avoid the unsettled problems of one's identity it is to be approached through biographies. The sameness of an identity is found in them. The personal, inner story has been called a moral compass (Taylor 1989). The inner story has also been said to be the basis of an identity (Ricoeur 1991). The inner story is an interpretative pattern with the help of which a person understands his/her life situation, identity, values, goals and status compared to other people. These stories are not always made conscious. For that reason people act according to routines, intuition and instincts. Student

teachers' reflected critical incidents and experiences may lead them to interpret things and events in a new way (cf. Brinzman 1986). Changing the implicit into the explicit changes the state of having experiences into the state of being consciously experienced to be able to handle with people and things

Becoming conscious of the different ideal teacher personality attributes also widens the student teachers' understanding of their values and goals. Writing down the qualities of an ideal teacher makes the values and goals more tangible, more real through the process of verbalization.

The ideal professional self mirrors expectations of others as well as of oneself which is compared to the *present self-view*, real self image. Individual professional development is built through interaction with colleagues and through reflection about inner wishes and perceptions. This is a self-organising process in which personal impulses and objective ideas of a desired picture of self are hopefully balanced:

I am conscientious and particular, sometimes perhaps too scrupulous. ... I think that conscientiousness and familiarity with the teaching issues are a good teacher's characteristics. (AS)

The *potential* self descriptions produced a choice combination of the traits already mentioned. Their number is about the fourth of the ideal traits. The student teachers seemed to understand the importance of reflection and self inquiry to become conscious of their strengths.

On the following pages the cognitive domain is first examined from the viewpoint of interpreting perceptions, then of pedagogy and discipline. Again, ideal self-concepts, self-views and potential self-concepts are reported separately.

Cognitive domain and situational sensitivity. The student teachers mentioned pedagogical or situational sensitivity as the traits of their ideal and potential selves. What is pedagogical sensitivity and to what is it connected?

Perception is said to be fundamental to the process of creating values and beliefs. Even the person who is born blind learns their values and beliefs from visually-sighted family members. The beginning of perception is the image in the mind which arises from something that interests the person. This image requires a mental act to present that image to the mind. There are two other components as well. There is a judgement about the image and a feeling towards the image. Thus the mental act which presents the 'imago' to the mind has three components associated simultaneously: 1) the image itself which is the content of perception, 2) a judgement which refers to the image and 3) a feeling of pleasure or displeasure which we feel towards the image. (Brentano, 1874, Heath 2005).

Heath develops that old idea on. He gives an example of walking in nature. When he walks along a path, he is preoccupied with his thoughts. He registers the passing scenery on his mind, but pays little attention to it (1). If something attracts his attention, he looks closely at it (2). Now the vague background transforms into a clear image, which can be called the foreground image. It is the moment when his attention is stimulated and the mental act occurs (3). Heath claims that not only do sensory images produce an act of observation, but even reverie can start a mental act. It is the interest in one's thoughts that generates the act whereby he enters reverie and focuses on internal stimuli. (Heath 2005)

Ordinary perception is passive. Then there is no act, just impressions as background content. But when the attention is switched to something, this switch is the act (passive observation – interest - act of close attention).

The act of close attention leads to foreground content or image. The judgement on the image and the feeling arise after the act and not simultaneously. The judgement on the image is either one of good or evil, or of truth or falsity. The judgement comes before the feeling. If the image is agreeable or truthful, the pleasant feeling arises. If the image is disagreeable to the person, or inaccurate or deceptive, displeasure ensues. (Heath 2005.)

Now, arrived at feeling, our desires and expectations come to the picture. But, if we do not make any judgement we arrive at mindfulness. This reveals that the process of perception has two parts in it: the sequence from passive observation to foreground contents is the unconscious part. The continuation from judgement to the feeling of projection or introjection (to the expectations/ aspirations/ desires) is the subconscious part since it deals with the hidden intentions and expectations of the person. (Heath 2005.)

To sum up: we form a judgement after seeing the foreground content. Then we summon up an appropriate emotion to fit the judgement. Then we use that emotional influence as a means of replaying our expectations or aspirations or desires: we use the content to summon up a habitual response. For each situation we subconsciously create a response which becomes automatic and habitual. We can also become aware of this “drama” of any particular situation and move on to altering responses. We should also know that if something/-body arouses our emotions, we do not necessarily perceive that something/-body accurately as it is in itself.

In considering teacher education and learning the situational/ pedagogical sensitivity the question is of the somewhat same phenomenon. Student teachers have to become aware of this kind of sensitivity, of their possibly wrong habits of projections and introjections, acquire cognitive pedagogical knowledge of the situations and of their interpretations of situations.

The 'perceptual' can also mean imaginal. The difference between imaginary and imaginal is that while imaginary means something which is unreal or Utopian, imaginal means imaginative consciousness or cognitive imagination. It speaks of things that exist, but are not easily perceived with our five senses. For that reason the situational sensitiveness is worth one more point of view.

Imagination, in the way we have come to think of it, is what enables people to see (hear and feel) beyond the visible world, the world as it is "given" by experience. It is the capacity that underlies our use of words and other symbols to reflect back, magnify, and extend various aspects to this vision. As such, it is fundamental to our becoming fully human. Where imagination has died, education cannot live. It may be so that explicit attention to imagination in the course of teacher education programme could facilitate that profound transformation that many teacher educators seek: the discovery of a vocation in both inner and outer worlds simultaneously. That is, attending to imagination may both aid the process of personal reflection and help student teachers come to a deeper understanding of pedagogy, curriculum and interaction.

The second or third career adult student teachers with a variety of life experiences behind them often find school contexts strange, and they may find it difficult to adapt to its structured world. Some of them, though, seem to retain an instinctive pedagogical flexibility and sensitivity that only need encouragement to develop. Nonetheless, many of them are lacking resources, both imaginative and experiential. It is the development of these resources and the forming of dynamic, powerful connection between imagination and lived reality that is the challenge of teacher education. The challenge is to integrate the depth of experience with the breadth of vision. This requires imaginative resources that can transform teaching from the mundane into the magical.

One way of transforming teaching is a reshaping the central aims and goals into reflective capacity, critical-mindedness, other-directedness, interpersonal attitude and pedagogical sensitivity. The student teachers of the present study regard the *situational sensitivity* and *interpersonal skills* of an *ideal* teacher as the most important in this category. They all mention them as their goals and often explain the term with synonyms. Other important characteristics of an ideal teacher are, according to the student teachers, the ability to create a *safe atmosphere* in the learning situation, ability to *listen* to the student and *appreciate* them. It presupposes seeing the *students as individuals* and the ability to receive feedback.

The traits dealt with above are very near to those connected to the affective domain. The difference lies in the way of looking at them. Affective attitude leads to empathy, sympathy, tactfulness, equality, honesty, trust and self-esteem as well as understanding the feeling of otherness. When the emotional attitude is connected with perception and is realised as an act based on perception, not only as an emotional preparedness, it is regarded as including cognitive processes.

Interpersonal, interactive skills, widely understood as the result of experience or innate ability, belong to this category of ideal teacher images:

As the last but not the least trait of my ideal teacher I would mention the knowledge of human beings. This is a thing that all people cannot learn and teach to others. A teacher should be able to “read” his/her student. ... However difficult this kind of things would appear, it is very important. ... It is rather easy for me to notice But I must, however, remember that which is a fruitful method with one person does not work with the other. (TH)

My ideal teacher knows how to guide a group. He/she has social ability and interaction skills. Knowing the models of group dynamics helps her keep the group working so that the prerequisites of learning have been made safe. ... She is also prepared to meet different learners. The picture I painted of a teacher is ideal and doesn't exist in reality. In real life the teacher is not perfect, but also makes mistakes. A good teacher also confesses this side in himself and asks for feedback. Being able to receive critique and a desire to develop his/her work is an important characteristic. (VR)

In accordance with the qualities already mentioned the writers valued creativity, innovativeness, and problem solving skills in interrelationships. Also the appreciation of teaching profession, and willingness to take the responsibility were regarded important:

Having knowledge of human nature he/she can ... solve the problems and understand them in a constructive way when the students are in their teens. As an expert of pedagogical policy ... he/she will develop the school community into a better and more humane place. As a maintainer of innovative action the teacher encourages with his/her own example the students and colleagues to develop their lives. He/she has strength to fight against the windmills without thanks or honour for his doings.(HM)

The student teachers wrote 119 statements of the ideal characteristics that can be connected to moral, interpersonal and situational pedagogical sensitivity. It shows that they consider them very high as their aims. In considering the proper category of the utterances it has been the context of the utterance that has mostly guided the decisions.

Compared to the above category of ideal teacher concepts of e.g. situational pedagogical sensitivity, the next realistic *self-views* show self-esteem and sound knowledge of one's strengths:

I am a rather good judge of people, and get along with a diversity of people. ... I take efforts to appease conflicts and find a common conclusion which would not leave anyone unsatisfied. As a teacher I act continuously with different groups and individuals and I believe that the characteristics above are for good. I understand the variety of human mind and the significance of background factors. Shortly said, I have psychological skills. (HH-S)

Still, there are statements telling that the author has honestly evaluated his/her characteristics and come to the conclusion that, in spite of some positive attributes, there are still many things to be learnt in the teaching career:

I am uncertain in front of the group, and I can't necessarily react in the right way in problematic situations. ... I am afraid of the breaks of silence, although I understand that thinking and reflecting need time and space. ... especially I find it difficult to act with young and lively students. Adult groups seem easier. I don't think too high of my skills, for that reason I think I can receive feedback and make use of it. (AK-K)

The statements in this category were mainly dealing with mastering situational factors and creating positive learning atmosphere in different ways as well as options for learning more of them.

Potential self-concepts of interpersonal abilities are in accordance with the earlier analyses. They repeat the necessity of knowing group dynamics, having situational sensitivity, interpersonal skills and appreciating students as individuals:

In university ... I would hope to be able to show both openness and the necessary criticalness in the connection of learning. ... In interaction skills, tactfulness and considerateness towards other people everybody will surely have a lot to improve ... I would hope to be a teacher who is easily contacted and who could observe people as personalities and individuals. (PR)

To conclude this chapter, we might encourage the student teachers to develop a personal metaphor of teaching that draws on a medium of expression close to their hearts: the teacher as an artist or a guide or whatever else near to them. When the student teachers elaborate their metaphors they discover unsuspected riches in themselves in the connection of teaching. They will also find an identity for themselves in which the otherness, so central to the pedagogical encounter, can be embraced as enriching and thought-provoking, rather than disturbing and frustrating. As a student teacher put it: "*I want to walk with my students a passage of life together.*" (SK)

Cognitive domain and the educational and disciplinary self-concepts. Teacher professionalism means not only developing self-confidence or social acceptability. It also means cognitive element which consists of the discipline or substance matter mastery, as well as the ability to exchange ideas in the communication habits relevant in different contexts. The disciplinary competence (substance matter mastery) concerns their first or second vocation or profession. In addition, the teacher needs pedagogical/educational science competence as well.

Over the past few decades much research has been carried out on the content and nature of teachers' knowledge. They have focused, for instance, on issues on teachers' professional learning, what counts as professional knowledge from a

philosophical point of view, and how one sees professional knowledge largely from an epistemic point of view. Studying the knowledge claims, say, in the works of Popper (1979) and Levi (1983), they seem to some extent problematic, especially since we cannot be confident of the logic of our probabilistic reasoning formalised in decision theory. On the other hand, if the knowledge claims are introduced as well-justified beliefs, it offers creedal standards for both teachers' professional learning and educational research.

It is important to realise that, although an individual's set of beliefs about the world needs to be anchored in experiences, it is not the same as requiring that specific, individual beliefs be grounded in experience. Beliefs are not justified by their sources, but by being, or becoming, mutually supporting members of a set that is anchored in experience. Thus teachers without sufficient educational knowledge are pressed to anchor professionally applicable beliefs in personal and local experience, both direct and indirect. They can succeed by anchoring some beliefs tacitly and formulating expressions of belief that are context dependent either in their personal biographies or in their immediate professional situations.

Functional specialisation orients teachers and educational researchers to different sources of anchoring evidence, to different evaluations of the uses of explicit generalisation and to different genres for the expression of justified belief. The researchers may also be context dependent, to a certain extent, in that making what counts as a contribution to research may be more conditioned by the state of their research field than by practitioner needs for better understanding. In addition, they are required to be maximally acquainted with sources of possible criticism of the justification of their beliefs and to make their beliefs public for others' critical evaluation.

It is also possible to see how teachers' professional learning and educational research should interact. Each has the possibility of being in a more or less serious creedal error, because experiential anchoring is not sufficient to guarantee justification of a teacher's professional learning, and surviving academic criticism is not sufficient to guarantee justification for educational research. Educational research supplies a major resource for teachers' professional learning in the form of explicit beliefs explicitly justified. The extent of their mutual support and experiential anchoring is thus evaluable. "Teachers as investigators of their own work" –theme in Finland in the 90's aimed at that target of mutual support. It has led to the awareness of the significance of experiences and considering implications for prior, personal creedal structures both in pre-service and in-service teacher education programs.

For the reasons given above the student teachers of the present study are supposed to have at least the basic knowledge of educational science or adult education science and didactics in addition to their exam in the vocational/professional field with working experience. When they are involved in acting

and teaching in the school contexts they need tools to observe, analyse and evaluate school life both from educational and disciplinary points of view. This all needs interdisciplinary strategies to appear. The knowledge and skills built into an interdisciplinary approach allows for the simultaneous construction of both propositional knowledge of facts, concepts and generalisations and procedural knowledge of how to apply selected concepts of strategies. It offers opportunity to observe connections across disciplines and form linkages between them. It has to be remembered, though, that in the future the present student teachers will teach on the secondary or tertiary levels. For that reason their disciplinary expertise should surmount or be balanced with their educational science competence.

In the following part the student teachers' expressed self-concepts as teachers are studied from the viewpoint of their competence in their disciplines and educational science. The line between the practical i.e. repertory and the cognitive i.e. disciplines is delusive in some cases, especially concerning educational and didactic topics. The solution has been to consider the procedural viewpoints: does it place emphasis on educational/ didactical knowledge or the measures taken on that basis. The former cases are regarded as belonging to cognitive, the latter to practical category. They are often in constant interaction and have influence on each other. "What you know decides what you see". The line has been drawn according to the emphasis of the statements, whether seen from the instinctive, intuitional, perceptual point of view or from the knowledge base which leads to the same.

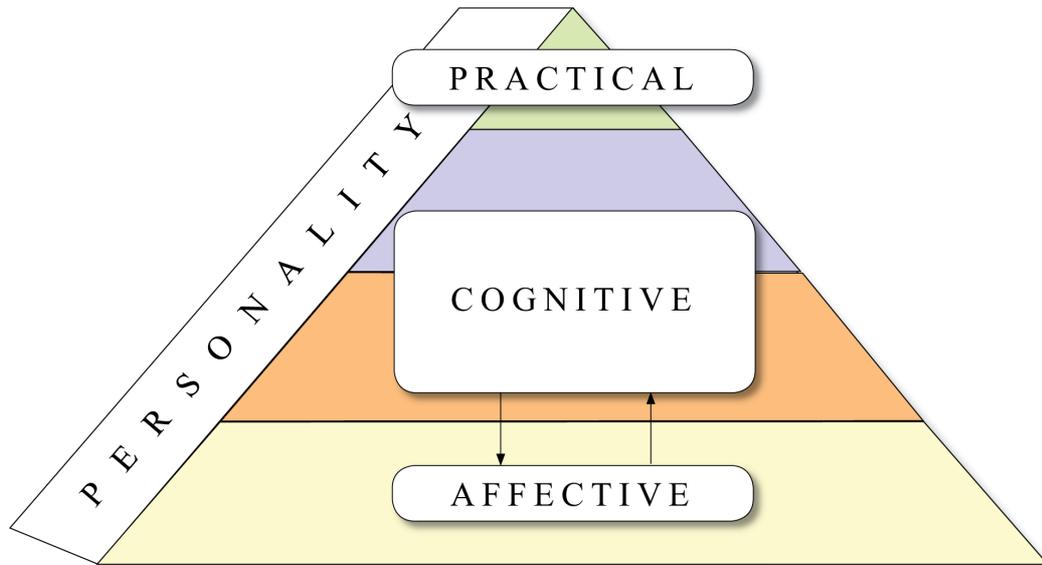


Figure 13. Cognitive action related to affective and practical domains.

Descriptions of an *ideal* self image concerning the student teachers' respective disciplines revealed that the absolutely most important characteristic seemed to be *expertise*, teacher as an expert of his/her substance, with a duty of life-long learning and keeping the vocational knowledge up-to-date:

My ideal teacher is ... an expert in his/her field of science. Expertise provokes trust and creates enthusiasm for studying the subject. He/she updates his knowledge by studying all the time to keep pace with the development, and would not slumber in the past knowledge. Thirst for knowledge is a characteristic of a person who wants to devour life and learn about it as much as life has to give. (TK-K)

The desire to keep up expertise is often connected with the ability to combine theory and practice. The ideal teacher knows how to apply theory and, vice versa, understands which theory lies behind the practical phenomena. Theory and practise are intertwined and are applicable according to the students' needs:

My ideal teacher has acquired considerable expertise in the course of time, and due to it he/she knows what she speaks about and what the things are based upon. She understands that there are many practical applications (the coin has always two sides), but what he/she tells about is his/her point of view and way to do it. (PH)

His/her expertise is on a firm ground, and he/she can give practical examples on any theme from daily life. (TKo)

Besides comprehensive experience and disciplinary knowledge, i.e. theoretical expertise and ability to practical applications, the significance of *working life contacts* were mentioned in several descriptions receiving

remarkable notice. It surely depends on the curricular changes of vocational secondary education in the last few years and the oncoming changes in all vocational education that the practical on-the-job learning has received attention. Consequently, the contacts between schools and various enterprises and employers have become all the more important.

(My ideal teacher) is aware of the demands of working life and applies the knowledge to his/her teaching ... He/she continuously keeps up with time concerning both working life and teaching. Is cutting edge, follows the trends. (SK)

As for *educational knowledge*, the ideal teacher descriptions stressed the knowledge of learners, different ways of learning and differentiation. Ideal teacher knows the curricular details and their application, individual learning contracts and planning together with students and how to motivate students. An important skill of an ideal teacher is also evaluation and feedback practices. The teacher should be didactically and pedagogically skilful with several suggestions how to realize the demand. Last but not least he/she should be a pioneer and an innovator.

My ideal teacher can find the proper rhythm for each group in teaching. .. A good knowledge of learners is also important. .. An ideal teacher is able to observe the student as an individual and also gives feedback taking into account every one's possibilities and goals. He/she takes efforts to find out the background of the group to the extent that helps him/her to plan teaching in the right direction. It is good to know for instance the previous educational backgrounds and, when adult groups are concerned, also the possible working experiences. ... My ideal teacher knows different learning styles and understands that none of them is better than any other. For this reason he/she tries through various demonstrations to ease the learning in different styles. The aim is, however, that the students widen their repertory in learning styles, so that the ideal teacher need not differentiate teaching optimal to every one's needs.(HH-S)

An ideal teacher masters also the many demands of evaluation. He/she knows how to encourage and motivate students with ongoing evaluation. He/she also guides students to self-evaluation and through this to become aware of their own learning. (KP)

About the *communication* skills of an ideal teacher image there were only few statements stressing the ability to express the ideas and teach clearly, understandably and according to the accepted interaction habits. The expressed evaluations of their present day and potential skills didn't bring anything new to the picture. Generally, their opinion was that with small possible improvements their communication skills are sufficiently good

In telling of the present *self-views* the student teachers showed sound self-esteem concerning their substance/ disciplinary skills:

I have a long working experience in the social field, and am used to theorizing practice. Still I find many developmental tasks for myself, before I am an expert in teaching. (A-KK)

I try to react fast to the changes and changing situations, which is especially important in the education of my own field. I have a clear and audible voice. I can laugh at myself. I have working experience from great household management a lot, and follow the development continuously. Because of my working life contacts I can give attention to the needs of working life in my teaching, and possibly supervise on-the-job learning and, above all, organise working places for that learning. I also believe that I have a practical conception of integrating working life and school education. (SK)

As to the educational science background, the opinions seem to cover the themes discussed in the context of ideal teacher images.

I have defects in pedagogical skills, too. ... A good pedagogue can explain the things so that a student understands them. ... A good pedagogue realises where the core problems lie. The teacher who can read his/her students knows when a student should be given long tasks (pieces of music) to be prepared and when a little bit less. (TH)

Generally speaking, student teachers mention the same issues as their developmental tasks, too, connecting them thus with *potential* self images.. That which the student teachers are unanimous is the need for *life-long learning* and *self-development*. They want to develop as experts of their fields, to update their knowledge and strengthen their working-life contacts. Through them they want to have a deeper understanding of their substance area.

In the educational area they list more numerous targets, known from their ideal teacher images, to be able to develop towards their ideal image in teaching. They understand that when getting more experienced in teaching, they will become more familiar with educational viewpoints as well. Also the responsibility as an educator towards the learners, as well as the responsibility as an instructor of substance towards the employers makes student teachers reflect on their duties. The next quotation combines the developmental tasks of substance and educational areas:

I consider also the role of a vocational teacher, of myself, too, as an educator? How can I bring up 18-year old students? I followed in the lesson how the educator's role appeared in the work. How the teachers reacted to students' curses and being late for lessons. Can I let this kind of students to the working life with a diploma in their pockets and still have a good conscience? ... I think that a vocational teacher must have also the role of a pedagogue, or that of an educator.(MH)

A professional self arises from the critical preoccupation with one's own incompleteness which has been recognised as changeable. There are obstacles in

the development, though. One is that of accepting incompleteness and blaming external circumstances for it. The other is to deny incompleteness and claim for perfection. However, the critical part of the self can watch over the activities at work so that the accent lies on task fulfilment and not on subjective feeling. It means that in spite of doing their best, the student teachers will notice that it is not always enough. The teacher moves in his/her self-evaluation between the different demands of the profession. Through reflective practices they can make the job better suited for themselves:

The teacher who is in balance with him/herself knows him/herself, can evaluate his/her action and reflect on it; he keeps fit for development and wants to transform (AR).

4.4.7 The Practical Domain

In developing a professional teacher culture in the vocational area the main goal should be to strengthen the disciplinary knowledge, improve the quality of educational knowledge and procedural skills through career development rather than searching for legal and institutional solutions only. Teacher education, besides involving practical training through cooperation between schools and higher education, besides enriching the action repertory during pre-service education as well as later during in-service training, will pay attention to the self development and self understanding of student teachers.

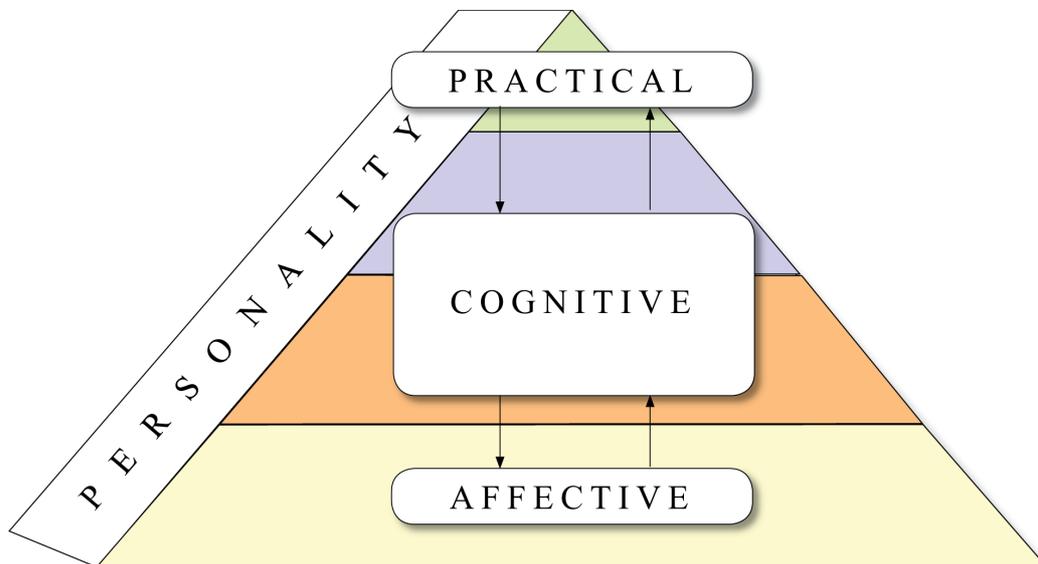


Figure 14. The holistic perspective of practical action.

The relatively recent development of constructivist approaches to teacher education recognize the need to equip teachers with tools to make informed instruction choices and to reflect on the consequences of these choices. Similarly, less deterministic concepts of teacher socialization emphasize the need

to challenge deep-rooted beliefs about teaching while providing student teachers with opportunities to develop deeper understandings about their role and about how to meet students' diverse learning needs (cf. Zeichner & Gore 1990). The participation of student teachers in dialogue, reflection and inquiry as part of constructivist teacher education, for instance, is more likely to 1) challenge teachers' traditional conceptions of teaching and learning, and the powerful 'apprenticeship of observation', and 2) support the choice of alternative practices based on teachers' contextual learning and reflection, and on understanding of students' needs.

If teachers are expected to treat the curriculum only as a guidance in their teaching, it follows that they would often need to create their own lessons and materials responsive to the context and individual student needs. It does not mean that they would not follow the official curriculum or act independently. Still, creating their own lessons and materials seems to move teachers from a position of more to less compliance with external and acontextual mandates. To what extent should teachers be encouraged to make instructional choices and still uphold the standards of profession?

If the teacher education program encourages teachers to act more independently, it is important to understand where teachers acquire their views of good teaching. Part of them will surely come from the observation of school contexts, especially lessons, and from theoretical lectures in teacher education. Many ideas about teaching will also surely come from their experiences as students, now or in their past school days. While most of the supervisors and tutors of student teachers accept the notion that teachers figure out their own teaching strategies, they may differ on whether, and in what ways, they consider reliance on these personal insights to be good or bad. There seems to be a tendency to advocate a specific model of teaching to guide teachers' instructional choices.

How do the student teachers of the present study express their ideas of instructional choices? To what degree do they attribute their conceptions of good/ ideal teachers to the experienced teaching repertory of the teacher(s) observed in schools? A general notion was that "I am now rethinking of many of my earlier views of teaching methods". There will supposedly be differences between predominantly constructivist-oriented school programs and more conventionally oriented programs, but the division between the schools has not been made here. Thus the variation of self-concepts concerning the teaching repertory is considered individual. – In the next passages statements of an ideal teacher's *teaching methods*, *classroom control* and *collegiality* are discussed. The ideal conceptions are followed by individual self-analyses and developmental tasks.

Classroom practices and the practical measures of teaching show interesting figures. While the descriptions were more numerous about the ideal teacher self-

concepts earlier, in this section the developmental tasks towards the potential self-concept roused greater involvement in self- evaluation than ideal or present self-concepts. The first possible explanation is that here the student teachers found an area which is practical enough to set concrete aims to. The greatest interest was given to action repertory and teaching methods. An *ideal teacher* image is described with the help of methodological measures in 2/3 of the statements, mostly often through ways expressing doings: what an ideal teacher can do or what is the ideal competence like.

Teaching methods are in a way the observable top of everything that has been learnt in forming the background knowledge: the affective, interpersonal, disciplinary and educational as well as other abilities which appear in school practices. The students are unanimous of the fact that a teacher must have a wide variety of different teaching methods at his/her disposal. They also give examples of the methods they should learn: pedagogical drama, PBL, functional methods and active, i.e. learner-centered lecturing for instance. The skills that they would need are motivation, activation, demonstration, story telling (cases) and creating images. They also need to know more of the applications of their knowledge of different learners and learning styles into classroom learning. It means understanding learning processes, being able to create optimal learning environments, giving attention to the holistic idea of learning and differentiate learning. They appreciate good skill of teaching which means to them the ability to explain clearly, find the core problems of learning and find the best ways to attain the goals:

An ideal teacher masters ... various teaching methods. Groups are different, and it must be taken into account when using the methods. In order to give attention to the different learning styles of students, different teaching methods should be used. Many groups today need functional teaching methods more than before. An ideal teacher can also vary the methods according to the learning rhythm and the time of the day. ... An ideal teacher can also adapt the methods to the themes. Substance knowledge and teaching methods should be in harmony. ... An ideal teacher knows how to motivate students well during the lessons. I consider motivating the most important factor in learning. As the means of motivation I regard for instance humour and examples/ cases very useful in teaching. ... Besides motivation, he/she can keep up the positive atmosphere and organisation in the class. ... An ideal teacher can combine the substance knowledge into a whole, in other words he/she doesn't offer atomistic knowledge. (AJ)

An ideal teacher gives attention to planning. Several researches show that teachers are not good planners. They are more like artists having a loose framework the inside of which they can fill according to the clues taken from the situation. Vocational second or third career students do not venture trusting their pedagogical intuition so much. They consider planning skills very important:

My ideal teacher has the skill of teaching. She knows different teaching methods and applies them to his/her work, he/she masters the skill of planning and can create long perspective goals to teaching. In setting the goals she takes the abilities and qualities of the students into account. (VR)

Making, finding and elaborating teaching material seems to be one of the ideal teacher's skills. He/she is also skilful in using modern technical appliances to produce material:

(My ideal teacher) is able to get enthusiastic with his/her own work and find new dimensions to it to motivate him/herself and students and perhaps colleagues as well. He/she has strength enough to plan new material to the lessons (SK)

The fourth area is evaluation. It has to be just in all cases. The skills of making diagnoses at the start must also be learnt as well as feedback collected and reflected:

A good teacher gets acquainted with the students' qualifications for learning . He/she starts every course with the self-evaluation of the participants to learn about their motives and aims, and with warming-up practices of the group. At the beginning of the course every participant's setting out information and other essential things are confirmed to make sure that the teacher and the student "speak the same language".... The teacher has to evaluate the level of knowing of the student not to teach the familiar things once again. ... The ideal teacher makes the students participate in planning, realisation and evaluation of the course. (TS)

The vocational teacher students, aiming at the secondary or tertiary levels of education, were not too much worried about classroom control. Their ideal teacher's ability to create order in the classroom was described in two ways: half of them concentrated on the ways of keeping the group in control and half described the optimal result of the measures.

An ideal teacher can keep the kind of social order and control that working towards the aims is possible. ... In a group situation he/she should be capable of creating an accepting and understanding atmosphere. (JA)

To conclude, the ideal teacher has the ability and desire to build the optimal learning situations and environments to the students. He/she is able to find practical means to attain the goals and use student-centred approaches in planning, learning and evaluation.

Self-views concerning the practical domain in teacher's work is difficult to describe, since many of the student teachers lack experience of school life. On the other hand, there are also student teachers who have longer or shorter working experience as teachers. Consequently, in these self-evaluations the themes are concentrated. They are composed of the same areas as above, but the divisions of statements are different. *Teaching methods* collect half of the statements, planning and general feelings/comments are equally represented with

a fourth of all the statements. Material preparation and evaluation are here in a minor position:

In becoming a teacher I am still a novice. ... In knowing the learner I am still a novice. Because I have a *behavioristic* learning conception in the background, it seems to appear too often in my teaching. My new learning concept has not yet become automatic.... It means that I don't take the learners and their previous knowledge into account sufficiently. Learner differentiation was quite unknown to me a short time ago, now I am a little further in it. The importance of motivation is also newly found during this education. At the same time I have had meaningful and pleasant learning experiences in practising different teaching methods. I try to learn them as well as I can to use them in my own teaching. ... Somebody said that you must first master the basic methods before you should try new ones made me depressed, but I think that the trial and effort are worth while. ... In teaching you can use many methods. ... Matching the methods with the substance matter is being developed by me all the time. ... Especially difficult to me is keeping the control in the classroom. I can't agree on the teacher being a police officer. Because I think that students have to take responsibility for their learning, they have to learn to control themselves. (AJ)

When talking about practical things, i.e. teaching methods, the student teachers willingly evaluated their needs for various developmental tasks. The *potential* self-concepts will be reported here together with self-views. *Teaching methods* and the skill of teaching in general takes the greatest share in the statements, but the need to learn effective ways of planning was surprisingly great. The following quotations combine most of the themes dealt with separately above:

As my most important developmental task I regard finding the right methods to present the most essential of the substance matter to the students. Building the orientation basis is also becoming. My developmental task is to learn the right kind of differentiation, too. I want to be able to take notice of different learning styles and strategies and organise teaching to fit them. ... I also try to explain how good motivation is accomplished. Motivation is the way to abolish problems of classroom control... I think it is most important to consider what the students think of their learning environments. ... My invention was to realise that the learners should really be taken along to planning the teaching. Although it is now easy to take for granted, it is not the same in the field. (AJ)

Along my studies I have noticed that it is necessary to make my teaching method choice wider and learn to make better use of that choice. Developing evaluation more versatile, continuous and understandable is a challenge alone. Giving and receiving feedback is often difficult, especially if it is negative, but through practise and learning it will have transformative influence. (KP)

A basis for common knowledge is constructed through interaction with colleagues within local and objective limits. *Colleagueship* is not a feature of a profession as a whole, but is a characteristic of certain groups such as teachers who have, for instance, a special educational approach, or have an academic

background of a certain discipline. An *ideal* colleague was not described in many reports, but the few examples show that he/she is nice, does not gossip, shares problems, develops the working community actively and is capable of team teaching with colleagues. An ideal colleague appreciates his/her working community and all members of it. The *self-view* of this was expressed by one student only who told that he is an attentive listener to his/her colleagues. The *potential* self images talked about the need to support and sharing of ideas, materials and methods, about team work and the appreciation of each other.

4.4.8 Summary of Self-concepts

Spurred by Berliner's work (1986) interest in teaching expertise has grown over the last few decades. With an increased awareness of the wisdom held by practising professionals, teacher educators explore new leads in teachers' knowledge, cognition and behaviour. Clark and Peterson (1986) suggested that expert teachers have amassed a large quantity of knowledge and possess cognitively more elaborate structures. This allows experts to meaningfully interpret classroom events and effectively make decisions that lead to good performance. Expert knowledge systems provide a framework for differentiating relevant cues and enhancing understanding of classroom events during planning and instruction. Expert teachers can better anticipate probable classroom situations, and then generate contingency plans based on those possibilities. Expert teachers establish routines, procedures, rules and strategies to usher learning and solve problems with maximum efficiency and minimal error. (Cf. Peterson & Comeaux 1987.)

Teaching expertise is said to develop in specific and identifiable stages. Berliner (1986) proposed a five-stage theory of expertise development: novice, advanced beginner, competent, proficient and expert. Most first-year teachers and student teachers come under the novice category. As novices they quickly learn required context-free rules, procedures and skills. They tend toward inflexible and rational behaviour. Gaining real experience as teacher is of critical importance. As beginning teachers gain experience in the tasks of teaching, they move from novices to advanced beginners (Berliner 1986).

The student teachers of the present study belong to several categories given above. Having working experience or even expertise in their first or second careers, still most of them were real novices entering their first real experiences of teaching at the time of research material collection. Some of them had already experiences of teaching behind them and felt more comfortable and more flexible in their teaching roles. They became less rigid in applying rules and pedagogical principles and attempted to recognise similarities across teaching incidents. Present experiences were seen as having a connection to past endeavours. They are advanced beginners.

Only after becoming competent teachers can they also engage the students and content in the teaching-learning process. At about the fifth year in the profession, some competent teachers may progress into the proficient stage, meaning they have both a global sense and holistic perception of teaching situations (cf. Berliner 1986). Finally, after years of teaching, a few proficient teachers move on to become experts. As expert teachers, teaching decisions and actions seem, to non-experts, to be almost effortless. They teach in a way that is intuitive, automatic and fluid.

Berliner's model of expertise development appears to hold much promise and potential for not only understanding the nature of expertise in teaching, but for classifying the critical experiences, skills, knowledge and qualities that distinguish the progressive stages of teacher expertise. In the last decades, much of the research on expertise has taken the form of expert/novice comparisons (Carter 1990, Eteläpelto 1997). However, the definitions of an expert have often been reduced to secondary characteristics, such as experience, reputation or a recommendation. Studies on how teachers with varying levels of expertise think and act are scarce. This study tries to identify some of the qualities of novice teachers and advanced beginners. The next chapter (4.5) will illustrate it more.

To sum up the findings of student teachers' self images, whether ideal, potential or what they call present conceptions of themselves, the results show that in this phase of the development the subjects see the teacher's skills mainly in 1) doing certain acts well, 2) having a positive and rightful attitude towards the students as well as showing good interpersonal skills, 3) self-esteem and 4) knowledge of teaching contents. Empathy is considered to be one of the basic qualities. It is really important, since moral actions need it as well as self-esteem and critical self-evaluation. Self-esteem, again, enhances empathy, so the qualities are linked together in many ways.

Interpersonal skills are one component in situational sensitivity which students appreciate highly. Educational science as the scientific basis of understanding classroom phenomena begins to get more value than it had at the beginning of the teacher education program. Traditionally, the discipline has played a big part in teaching. It is seen in the findings, too. Since the subjects are second and third career vocational student teachers, they emphasize a teacher's ability to foster working life contacts.

Teaching methods are valued highly. The student teachers concretize their ideas of a good teacher by describing what the teacher can do or what she/he is like. They are not all able to neither name the methods very carefully nor analyse their ideals and present conceptions of themselves more analytically.

There were differences as to the richness and thinking skills in the contents of the essays dealing with teacher images. There seemed to be two main reasons for this. First, the differences originated from the familiarity or unfamiliarity of the

classroom situations. Teaching experience before coming to teacher education gave wider perspectives. Secondly the ability to analyse one's own conceptions, feelings, hopes and threats was not equal: the findings ranged from self-satisfaction or shy reflections to wide presentations of oneself and the qualities. Some essays showed poor skills in reflection and self analysis and were therefore scanty. All the essays analysed contained, however, enough material to get a conception of the student teachers' ideas.

For the purpose of professional development the necessity of reflection and becoming aware of the emotions connected with interaction must be given space and time. We can assume that by nature people reflect on their experiences, but systematic reflection often differs from what teachers are accustomed to doing. If we look at how teachers generally reflect, often influenced by their specific school cultures, we can see that the pressure of work often encourages a focus of obtaining a quick fix, a rapid solution for a practical problem, rather than shedding light on the underlying issues. In some cases teachers unconsciously develop standard solutions to what they experience as problems, so that the accompanying strategies become frozen (cf. Schön 1987). The teacher is no longer in the habit of examining these strategies, let alone the analyses he/she once made of the problems they were intended to address. Thus, structured reflection is important in promoting sound professional behaviour. It also supports the development of a growth competence (cf. Korthagen et al 2001), the ability to continue to develop professionally on the basis of internally directed learning.

The experiential model of learning (Kolb 1984, Egan 2000) can be adapted to make first a model which aims at structuring reflection in the following way:

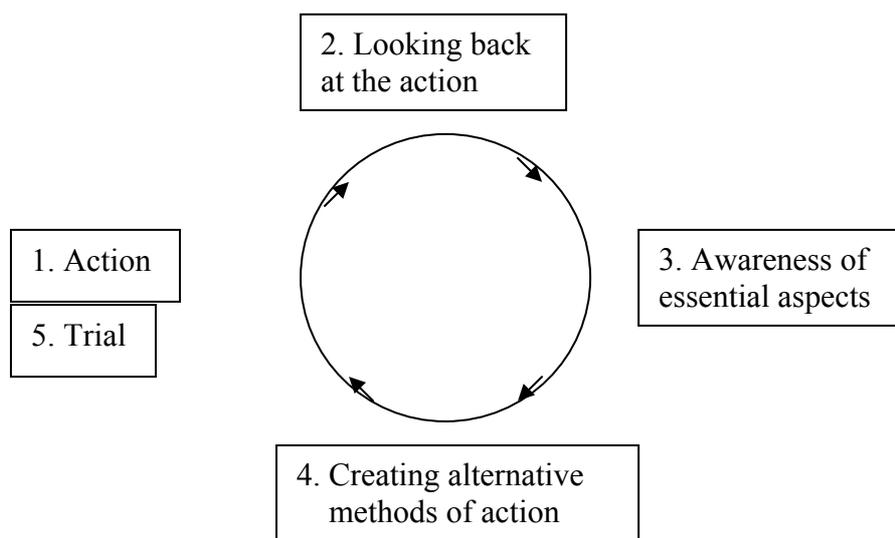


Figure 15. The model of structured process of reflection (cf Kolb 1984).

The processes described in this chapter via ideal/ present/ potential self-concepts, which were produced by writing reflective protocols and summaries,

can be concluded by concretizing the interventions on the cyclical model. The model shows how the different domains are activated in order to lead to various kinds of awarenesses in this phase of observation and first experiences of teaching and later on during the actual teaching practise.

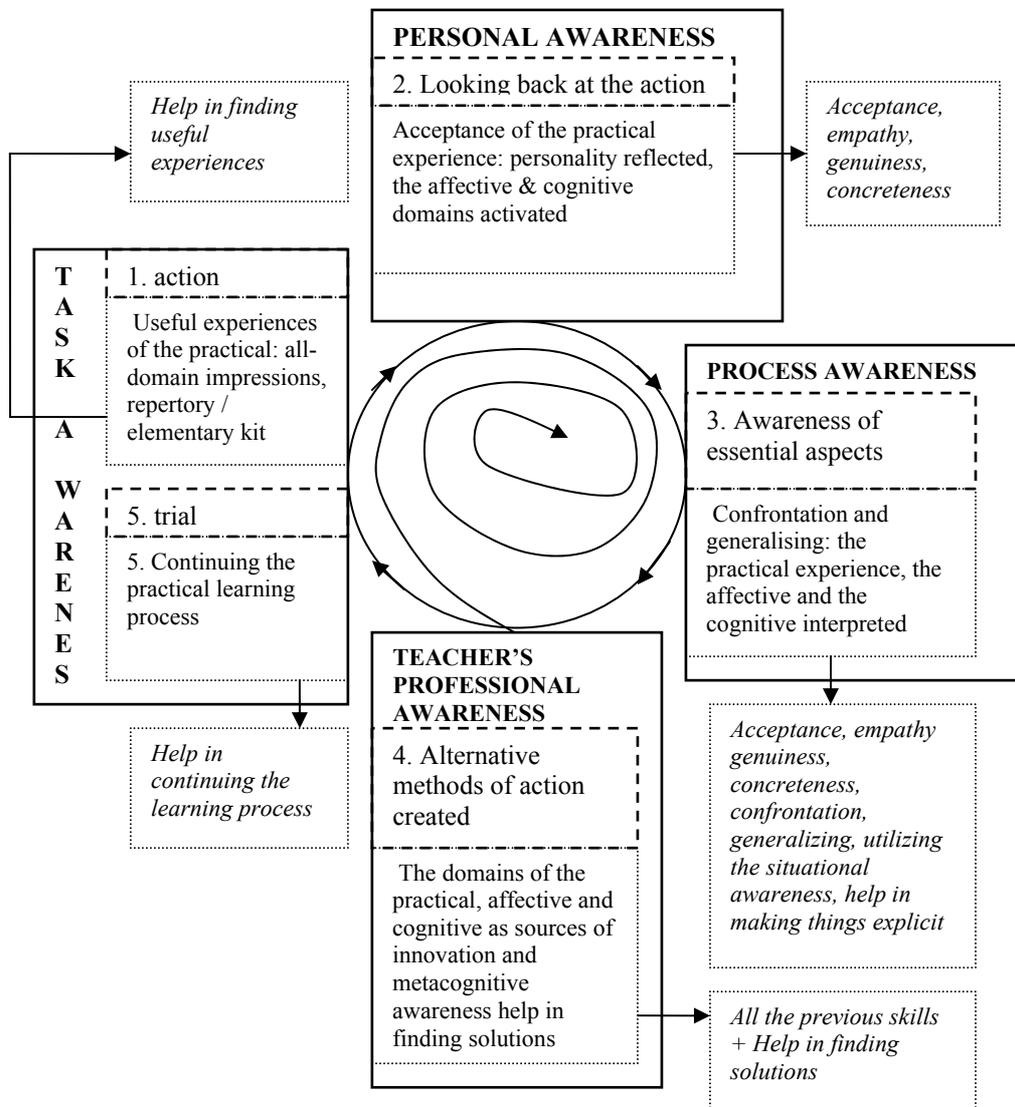


Figure 16. The holistic model of the domains as contents of reflection starting from the self images and moving towards professional awareness. (Shaped according to Korthagen 2004.)

From explicating their ideal conceptions of themselves as teachers and reflecting on the possibility to develop towards the idea, the student teachers continue the process and move smoothly to practising teaching in real situations. They should be made conscious of how to include all the areas shown above, i.e. the dimensions of wanting, feeling, thinking and doing in their concrete actions. They should be approached systematically. Korthagen et al (2001) suggests concretizing questions concerning teaching contexts to be asked in the following way:

1. What did you want?
1. What did the learners want?

- | | |
|----------------------------|-------------------------------------|
| 2. What did you do? | 2. What did the learners do? |
| 3. What were you thinking? | 3. What were the learners thinking? |
| 4. How did you feel? | 4. How did the learners feel? |

Another important intervention is *empathy and emotional intelligence* which have to do with an explicit understanding of how another person feels, and is being able to put a name to what triggered those feelings.

Important in this approach towards reflection and transformative teachership is the balanced focus on thinking, feeling, wanting and acting, whereas in many other views on reflection there is a strong focus on rational analysis. Many teacher educators use Kolb's model (Kolb 1984) which describes experiential learning as a cyclical process of concrete experience, reflective observation, abstract conceptualization and active experimentation. Although the model looks rather similar to the model above, it stresses conceptualization much more than the development of an *awareness of less rational sources* of teacher behaviour.

Further, the former role models have an influence on teachers. This phenomenon can be described in terms of *images*. The role of values, which are often strongly rooted in the teachers' personal history, appears significant. Teaching is also strongly influenced by *feelings and emotions*. The attention to feelings and emotions in teachers concurs with recent insights into human consciousness, for example with a conclusion drawn by Damasio (1994) that emotion is linked with the primary decision-making process. Finally, self-determination theory (cf Deci & Ryan 2000) emphasizes the pivotal role of human *needs* in people's functioning.

It is not easy to capture all these less rational sources of behaviour under Kolb's umbrella term of abstract conceptualization. The model seems too rational for that as such. But in figure 16 above, phase 3 is explicitly aimed at developing awareness of these less rational factors.

Reflecting on the attributes of an ideal teacher, on one's present self-view and capacity of development in the future makes the core qualities of a teacher more concrete. In the best case the reflection can act as a road map in the future professional growth. Practise is the starting point of teaching, and it is also the top where everything that is learned will act together. The experiences of practice will be dealt with in the next chapter with the various aspects of awareness again as structuring factors.

4.5 Development towards Conscious Teachership

Studies suggest that pre-existing beliefs about teaching, especially for those entering teaching later in life, are linked as much to prior work and personal

experiences as to prior schooling and to teacher education. Prior personal experiences (for instance having children, work, non-classroom teaching) and professional experiences tend to foster high levels of optimism about self as teacher (Ch 4.4., Weinstein 1989), influence what the student teachers learn about teaching during professional teacher education, and how they initially prepare and teach lessons in the practice period (Cole 1990, Powell 1992).

It is because second or third career pre-service teachers in general have extensive work histories, families with children at varying ages and advanced preparation in their content area (Bennett 1991, Bullough & Knowles 1991, Denton & Morris 1991) that they are better equipped for teaching profession than their younger peers. The previous chapters of this study already brought the notion that the second or third career student teachers conceptualized learning and teaching in a different way than their younger peers (cf Nissilä 1999b). They were influenced either by their own children's experiences in school, by prior work, and by their own learning styles. The young student teachers were influenced more by experiences as university students and their school memories.

Second or third career student teachers earlier in this study were found to have conceptions of teaching grounded in their personal value systems about teaching and also, though less transparently, in experiences as parents. Young student teachers were influenced more by study-time experiences, by beliefs about learners, and by friends and relatives who were educators (Nissilä 1997, 66). While both young and second or third career student teachers had knowledge about teaching at the beginning of teaching practice periods, noteworthy differences existed in how prior experiences and biographies influenced their constructs of teaching. What should be studied more is how these prior experiences ultimately influence classroom instruction.

4.5.1 Contexts and Processes

Classroom Climate. There is a multifaceted complexity of socialization as teachers among second or third career persons. This study already suggested a dynamic interaction between the school contexts, preconceptions of teaching and teacher images as well as personal and professional autobiographies. Further, this chapter tries to show that the interaction between school context, student teachers' prior beliefs and autobiographical factors influence classroom climate by shaping the action of the student teachers.

The student teachers need activities that help them to understand the relationship between classroom climate and their preconceptions of teaching. They also need experiences to understand how prior experiences influence their ability to develop shared classroom perceptions with learners. This includes

explicit and implicit communication, ways of showing empathy and confidence as well as developing a shared symbol system with learners.

Those student teachers who lack basic and reliable knowledge of young people and adults as learners need appropriate contact with learners throughout their teacher education (cf. Bullough & Knowles 1990). The teacher has to be able to foster a deep understanding of the nature of adolescence and, particularly in vocational adult education, also of that of adults as learners. Without them communicating and cooperation with learners cannot appear effortless.

It is also important to help student teachers to construct well-developed images of self as teacher, as they negotiate the role of teacher. Accommodating new experiences in their images can be an easy thing if the student teachers have useful experiences e.g. from dealing with their own children, from former work as consultants or from volunteer activities with adolescents or adults. On the other hand, an underdeveloped or very ego-centred image of self as teacher needs time to be reconstructed, notwithstanding the fact that a person possibly got the highest grades in university, is proficient in the technical skills of teaching (i.e. planning lessons, writing objectives, developing advance organisers). The latter student teachers need time to learn to interact with diverse groups of learners and overcome the daily pressures of organising and delivering content in an effective manner. Without a clear, realistic image of self as a teacher, the student teachers can become exceedingly vulnerable to learners' reactions to their teaching, at least if they are negative.

There seems to be a pressing need to help student teachers understand that developing an affective classroom climate is socially complex, involves the ongoing interaction of various instructional tasks with personal predispositions for teaching (cf. Nissilä & Valtanen 1984). Learning to teach involves considerably more than acquiring strategies and skills to teach specific content, as written in behaviouristic teacher training programs. Teaching substance matter skills is intertwined with other tasks, including showing empathy to learners, communicating positive, implicit and explicit messages, negotiating the role of teacher, constructing an image of self as a teacher, developing classroom routines, and establishing boundaries for learners' behaviour. That all these tasks occur simultaneously and are influenced by prior beliefs about teaching, by personal biographies and by the school context illuminates clearly the affective, social, cognitive and practical complexity of learning to teach.

The Context Providing Meaning. Technological developments in conjunction with social-economic interests induced the surfacing of discussions on human welfare and priorities. Technologies are overcoming the artificial boundaries between people and nations, and actually are creating a global village. Thus, a discourse that centres on collaboration and mutual responsibility complements the individually centred discourse. The tension between these two discourses

gives rise to a culture that is a mixture of openness to pluralism of ideas and the acknowledgement of globalization and unification.

Within this turmoil the walls that isolate the schools from the general socio-cultural discourse often managed to sustain traditional conservatism. Concepts regarding the nature of knowledge and the process of knowing are still anchored in the rigid positivistic approach in many cases. The promoted knowledge, in the worst case, is decontextualized and become canonical knowledge which is detached not only from the contexts it emerged from, but also from the learners' authentic interests and needs as human beings.

Since the 1970's the development of new pedagogies has attempted to bridge that gap. The collaborative dialogue revealed the various perspectives of the issues and attitudes towards them, establishing a learning community that was based on the needs and values of the learners. The majority of the research community acknowledges that the context is inseparable from what is learned, and, moreover, it is an intrinsic part of the learning situation with respect to the activities and processes (Davis & Sumara 1997). This approach claims that the process of learning does not reveal the meaning that is inherent in reality, but rather confers meaning upon reality. Thus the subjective conceptions of those involved in the inquiry process, their worldviews, values and attitudes, all colour the constructed knowledge. (Ibid.)

In Finnish vocational teacher education, the recognition of the major role of the context in the construction of meaning has found its way to school culture. It is a part of the tasks the student teachers are involved in, the discussions regarding the issues that are learned, the ways how they were learned, and the general approaches towards the nature of learning. The context can be defined as something that "supports the particularization of meanings by constraining the cognitive processes of meaning construction, and by eliminating ambiguities. On the other hand context also prevents this particularized meaning from being isolated as it brings about coherence with a larger whole." (Van Oers 1998, 475.)

Van Oers provides three interpretations for 'context' as providing meaning. They give rise to examine their roles in the present Finnish context of vocational education and vocational teacher education:

- 1) Context as mental environment. This refers to embeddedness in the cognitive structure of the learner e.g. his previous knowledge that is brought to learning situation and enables construction of meaning. Ausubel called this 'meaningful learning' (Ausubel 1968). Deviating from Van Oers' view which stresses cognitive knowledge, this study includes also dispositions, motivation and personality, i.e. the cognitive-affective context of the participants in the process of meaning construction.
- 2) Context as a meaningful learning situation draws the meaning from external-social situations. When it is a part of the constructed meaning, it is referred to as 'situated cognition'. As the meaningfulness of a situation

may be different for different people, it is liable to lead to different understandings and different actions. It also guides authentic learning and assessment. In addition to this more practical/concrete point of view, abstraction and generalizing processes are regarded important in Finnish vocational education in secondary and tertiary level.

- 3) Activity as context integrates human actions into a coherent whole and provides the basis for the learner's meaningful interpretations and actions. This establishes a particular activity setting that provides coherence among the learner's actions, tools symbols and values that mold learning in specific situation. The learner interprets the nature of the appropriate activity based on his prior experiences and present goals, which in turn become the context for action. In organising vocational teacher education in Finland, the aspect of responsibility of learning has included the tendency to reveal the underlying epistemologies that give rise to activities.

The contextual pedagogy, widely understood, encapsulates the learners' previous knowledge, his/her needs and interests, attitudes and interpretations. In this pedagogy knowledge is not an aim to be acquired for its own sake, but an instrument to be applied to the investigation of problems. In the present vocational teacher education this is especially true of the pedagogical knowledge. It resembles Dewey's reflective inquiry referring to learning that integrates the processes of acquisition and application of knowledge.

The context in which schools and teachers are situated was found to have greater significance than any other single factor in determining what and how teachers' learn their job. In a broad sense, the context refers to the changing cultural mix of society and the changing family structures, economic circumstances and technological development of society. Viewed more narrowly, the context refers to community served by the school. The local community is a formation of intersecting elements including location, social class, ethnicity, family structures and religion. "Many forms of knowledge are emerging as worthwhile and legitimate in ways that challenge the epistemological superiority of academic establishment. Strong school cultures and vibrant professional development networks create conditions where teachers can share their own practical knowledge and have independent access to other knowledge from elsewhere." (Hargreaves 1994, 119.)

While learning on the job is not recognised as the primary source of teachers' professional competence in Finland, it is highly relevant both to student teachers during their teaching practice and to vocational in-service teachers. From the viewpoint of pre-service education, on-the-job- learning is seen either as a follow-up of traditional teacher education (life-long learning) among novice teachers, or as the antecedent of traditional teacher education for the student teachers who enter teacher education with experiences as unqualified teachers. The optional case is that after the classroom practice of pre-service teacher education and the more theoretical studies in teacher education, the dichotomy

between the theory and practice of teaching should be abandoned and a more seamless notion of professional development should emerge instead. Further, in vocational education the strong emphasis on the working-life-contacts and up-to-date knowledge are factors which blur the lines between teaching and working life expertise.

Reflection for Teacher Transformation. Knowledge of teaching should be explicitly valued by student teachers: they should pursue the development of such knowledge. It is a necessary aspect of their teaching, instead of setting a technical-rational approach as their goal in practice. For those reasons it is utterly important to accept the challenge to embark on a self-study. Learning through individual and collective reflection in order to develop an articulated knowledge about practice is an example of the manner in which reflection moves beyond the individual self.

Furthermore, the portraying of learning to teach offers interesting points of view on self conception and facilitates the understanding of oneself and the others as teachers. Consequently, self-awareness, i.e. personal understanding of the very core of one's identity, including one's traits, feelings and behaviour and forming the basis of accountability and consciousness, need to be enhanced. Self-awareness is closely connected to the traits of emotional intelligence. It is important to be developed, for a teacher needs intra- and interpersonal understanding.

Since learning about teaching needs to be embedded in personal experience, and since experiences teach only if they are reflected, the journals written systematically at agreed intervals is a meaningful way to uncover important facets of the knowledge of practice, especially when evaluated afterwards. In doing so the student teachers might begin to capture the complexities of teaching in ways that might lead to a deeper understanding of practice. Reflection needs to be extended beyond personal knowledge construction in order that a shared knowledge of teacher education practices might begin to be articulated and developed.

Individual and collective reflection have thus important gains in teacher education through connections to personal, institutional and group levels. The personal gains include the professional development of individuals, institutional gains appear in relation to their understanding and later perhaps reshaping administration, curricula and programs, and group level gains are evident in the growing professional community of teachers which benefits from the ongoing interaction and sharing of insights. Cochran-Smith and Lytle (2004) recognise that self-reflection is "a way to reinvent teacher education by continuously interrogating one's own practice and all of its underlying assumptions" (607).

Reflection is aimed at helping the student teachers to develop multiple goals and encourage transformative development. Transformation is not one

significant emotional event, rather it is a series of experiences which teach to think with critical perspective. They are reciprocal processes that enable the students and teachers to construct meanings and occur within the context of relationships. The creation and expansion of possibilities and capacities for reciprocity occur more often in communities which are rich in relationships. The roles of people should not be thought of as fixed entities. Instead, they should be seen as relationships, not as patterns of relationships, but involving one another. Reflection reinforces the importance of placing relationships in context. An understanding of teaching and learning derives thus from contextualized knowledge, i.e. a reflective practitioner needs a particular teaching situation to be reflected upon.

The Role of Imagination. Becoming a teacher who has a tendency towards transformation is in part a journey of imaginative development. Student teachers come to imagine teaching and themselves as teachers in new ways. It has been sometimes claimed (e.g. Egan 1992) that explicit attention to imagination in the course of a teacher education program could facilitate the profound transformation that is sought for: the discovery of a vocation in both inner and outer worlds simultaneously. Attending to imagination may both aid the process of personal reflection and help student teachers come to a deeper understanding of pedagogy and curriculum. For those reasons reflective capacity, critical-mindedness, other-directedness and pedagogical sensitivity were closely allied in the contents of preparatory courses for the teaching practice of the student teachers of the present study.

It follows that the goal is to develop a kind of thoughtfulness that is also deeply cultural in nature. The student teachers are encouraged to see their teaching as connected to the things about which they are most passionate, and to pursue knowledge and understanding in these areas as an integral part of being a teacher, although it might not be directly connected to their discipline area. For instance becoming a better photographer develops imagination, and imagination is given its proper place in teaching, say chemistry, and in one's conception of teaching. For that reason the student teachers are also encouraged to develop their own metaphors of teaching that draws on a medium of expression close to their hearts: the teacher as an improvisational artist, a potter, or as a hostess of the party, as the researcher of this study prefers, for instance.

4.5.2 The Praxis Cycle

The reports of the final teaching practice period (a continuance of 16-32 given lessons, 20-40 hours of observation and certain other contextual tasks) offer ample material for the research. The reports vary in size (from 2-page reports to 20-page ones) and in organisation (clear dispositions and subtitles, day-to-day protocols with more or less reflection, or reflective processing of thoughts throughout). The students were suggested some themes that they were expected

to write about. The only theme out of the suggested ones that was unanimously written of was the self-evaluation of oneself as a teacher after the practice experience. In other respects, the student teachers preferred individual choices in compiling their essays.

Out of 50 final reports 24 were chosen for closer study on the following criteria: 1) the persons had been supervised by various tutor teachers and supervisors during their practice, 2) they produced reflective material sufficient for the analysis, 3) the writers represented different ages, educational backgrounds and were both males and females, and 4) the group consisted of total newcomers to the profession and persons who had already been teachers longer or shorter periods.

In the practical teaching period the student teachers were immersed into the realistic settings of learning. They had already completed their observation tasks, now they were supposed to enter the group learning situations with the skills that would hopefully start to change from theoretical into practical. After observing the lessons and getting to know the group earlier, they now proceeded to teach. For it they had to make a holistic plan that was advised to include:

- The learning, human and epistemological conceptions of the student teacher
- Personal teaching philosophy
- The description of the group: the size and age division and other details, as well as the background education of the group members
- The description of the substance matter to be taught and its position in the overall curriculum
- The timing of the lessons on the continuum
- The division of the themes on the continuum
- The methods chosen for each theme and the reasons for the choices
- Plans and descriptions of illustrating the theory and of exercises
- Plans of integration and differentiation
- The evaluation of the students
- The assessment and self-assessment of the student teacher

The plan was advised to be negotiated with the tutor teacher in the school first and then with the supervisor in the vocational teacher education college. Only after their acceptance the lesson practice could start. The student teachers were also told to write a journal of their experiences, thoughts and emotions during the practice period. The summary of the journal with reflection attached was to be given to the supervisor in the closing seminar after the practice.

The whole process can be illustrated in the following way:

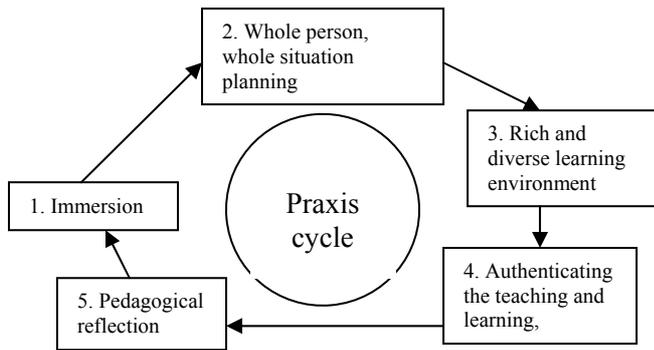


Figure 17. A holistic personal engagement in praxis.

For the evaluation of given lessons and for the outset of feedback discussions with the tutor teacher, a systematic method was suggested. The questions concerning especially the student teacher interaction in the teaching situations were simplified into the form of the quadrangle shown below:

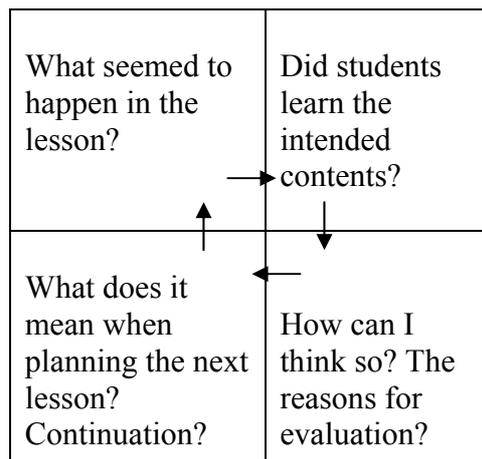


Figure 18. The questions to be answered and lesson outcomes to be evaluated and reflected on after each lesson.

The closer examination of the research material will start from the personal awareness and will continue via task and process awareness to the environment and the developing professionalism in the following way:

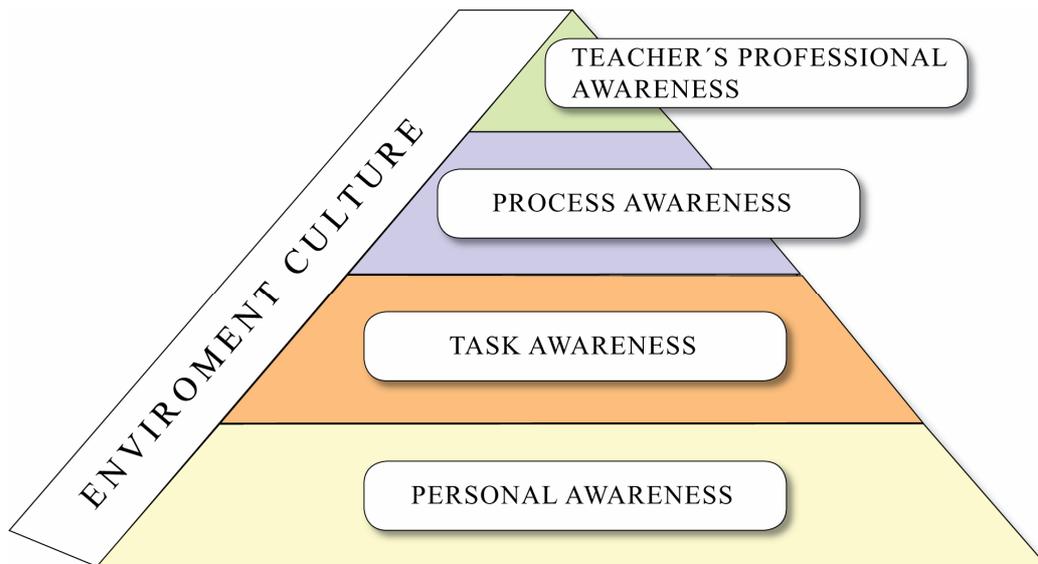


Figure 19. The framework of awareness for holistic pedagogical learning through metacognitive processes in institutional setting of teacher education (cf. Kohonen 2002, 10).

4.5.3 Different Domains of Teacher Awareness

Personal Awareness

Different aspects of self views were studied in the earlier chapter. Here the same points of view are revisited, since the change of settings has brought new insights to the self-portraits of the student teachers. Personal awareness in the following analyse is made up of aspects like

- mental models
- explicated values and attitudes
- intra- and interpersonal domains such as
 - self-concept, identity and realistic self-esteem
 - self-efficacy, self-direction, self-reflection
 - emotional intelligence (i.e. intra- and interpersonal skills, adaptation, perseverance and general well-being)

Facing professional change is not just an intellectual and rational matter of learning the factual information to the 2nd and 3rd career student teachers. It is also a question of undertaking the necessary emotional work inherent in any major changes or new professions. Changes imply new attitudes, skills and understandings. In a way learning a new profession may pose a threat to the student teacher's self-understanding and belief systems. It requires modifications in the beliefs and assumptions of the role identity. (cf. Kohonen 2002.)

Mental models. This passage investigates the development of student teachers' conceptions of human beings, their personal epistemology, i.e. what epistemological beliefs and conceptions individual student teachers hold about knowledge and knowing in general, and about information acquiring, processing and learning in the vocational context in particular. The concepts that the student teachers present in their essays were analysed and first categorized. The categories included also values and attitudes, if they were explicitly expressed. The relation between the concepts, such as more or less clear interdependence made the material difficult to classify under separate categories. For that reason all of them appear under the main title of mental models.

Together the material includes about 200 quotations (paragraphs or statements) from 24 student teachers, the smallest category being the human conceptions (23 statements), epistemic conceptions gaining 31 and learning conceptions 144 of all quotations. This is due to the interdependence of learning conceptions with the two others in the material. The categorization was made according to the leading themes of the quotations.

The student teachers express their mental models by describing their prognosis of the learning event, learning processes and products of learning. Or they express their ideas through actions or actor types of teachers and learners. In general statements they use the names of various learning theories and described their personal attitudes towards them. They embedded their human and epistemological conceptions into those frameworks.

Human conceptions. Of human conceptions the student teachers state that all students should be noticed as individuals, they should be appreciated, their individual backgrounds and orientations should be observed, and encouraging feedback should be given to all levels of students. They should be given space to choose the ways they want to learn and make use of their biography and experiences. They should be entitled to extra supervision in need. Democratic attitude to all students is vital. In short, many student teachers write that they have a humanistic conception of people:

Humanistic conception of people is connected with close and emphatic, ethical attitude towards the learner. The relationship with the learner supports learning and growing as a human being. In the growing process the learner's own values and autonomy are appreciated. (KP)

My tutor teacher had a very different view of teaching and treating students from that of mine, which gave me things to think of, whether my view is the only and right one. ...I don't, however, accept the teacher swearing at the students or underestimating them. (SE-H)

Epistemic conceptions. Of epistemic conceptions the student teachers focus on the sources and the nature of knowledge and the elements in the knowledge acquisition process. They write that students should be encouraged to act autonomously and actively as well as take responsibility for their own learning.

They emphasize problem solving and understanding in learning. Understanding is necessary in applying their knowledge in different situations. Critical attitude towards information is considered important. The connection between theory and application is found important, which was expected in the context of vocational education:

The epistemic construction does not always presage *whether* the student is able to make use of his/her scheme to solve real problems. For that reason, from one contents area, the teaching of microscopic investigation of microbes, an application task was taken along to evaluate the ability of applying the knowledge. (KL)

It became evident that the teachers' beliefs affect student learning and students' perceptions of the desirable outcomes. The development of epistemological beliefs interacts with teachers' actions and the pedagogical implications, and influence the shaping of students' personal epistemology.

Learning conceptions. Most student teachers of the present study have mainly adopted the constructivist view of learning, with the emphasis towards socio-constructivism and situational learning. According to constructivism, learning is not passive reception of information but a learner's active process of constructing and reconstructing their conceptions of phenomena. Learners interpret new information on the basis of their previous knowledge. Thus it emphasizes understanding instead of memorization. It also relies on social interaction and collaboration in meaning making. Since people have individual experiences, they may attribute different meanings to the same things. For that reason it is useful to organize learning on the basis of interactive and cooperative forms of learning.

The present study concentrates on academic, second or third career student teachers. It is evident that the constructivist approach is most appropriate for their adult learners. In their earlier disciplinary studies student teachers were already used to scientific activity which is constructivist by nature:

They realized the importance of the scientific study of occupational therapy, and also the fact that practical applications and research work are not two separate worlds, but they should have dialogue in the form of practice which is based on skills show tests. (MV)

Further, the present student teachers are competent in their fields of professional expertise, which has probably lead them towards constructing and applying complex tasks. Still, they can see the usefulness of behaviouristic learning conception as well:

I like constructivist teaching, that students are demanded autonomous studying, responsibility for their own learning and the attitude of developing themselves. It can't, however, be the whole idea of teaching. The teacher has also to take

responsibility for the learning of students, to do his/her duty in the learning process. Behaviouristic learning conception will surely have its time and place. (SE-H)

Other learning conceptions which students mention by names, besides constructivism and behaviourism, are experiential learning (and Kolb's model), humanistic-cognitive approach, transformative learning, communicative, functional learning in languages and holistic learning.

Pedagogical implications. The student teachers approach their definitions of learning through pedagogical implications. They state that the learners' previous knowledge and beliefs are important:

First I tried to make them tell what they already knew of the issue and after that to make them construct new knowledge. I didn't however succeed in making the students talk in the theory lesson, although I tried to make questions. The students are passive and don't want to participate, they want to get everything ready. In practical exercises their own ideas and knowledge appeared more. In group works, in the theory lesson their own views were easier to appear, since they had had a similar group work task in the first year of their study, and it gave rise to discussions. The students' knowledge must be dug out. (SaKo)

Understanding the matter was left deficient and information was not tied to anything. The students did not have sufficient pre-knowledge of measuring and the use of gadgets. (HM)

During my course I believe the students' previous knowledge was shaped into meaning structures and thus formed a holistic picture for them about built environment. (TLL)

Self-regulation. To appreciate the learners' self-regulative skills and knowledge as well as to pay attention to their metacognitive skills some student teachers planned sequences of studies in the way that it offered alternative ways of acquiring information:

I think that one of the most most important tasks of education is to teach the learner acquire knowledge him/herself and take responsibility for his/her learning... I remained thinking of this everlasting fight between quantity and quality: is it better to go through a great amount of theories and fast, when learning is likely to be superficial, or to concentrate on a smaller amount of input during the lessons and make it deeper through the students' own activity. (HH-S)

To appreciate the student's right to be absent from lessons and choose the best method to learn ... efforts were taken to present the contents of lectures in the way that made it possible to study autonomously. ... According to my learning conception the student has a central role in the learning process. ... In the ideal case the student is allowed to choose the study methods and ways to show his/her learning that are most suitable to him/her. He/she should be given

supervision sufficiently to help the progression of the studies. In practice the situation above is difficult to realise. (TS)

I do not believe in the power of lecturing alone, especially since nobody listens too intensely during the first 30 minutes. The teacher has to raise thoughts, images and connect things into the students' own reality. (TLL)

Sharing of meanings. Negotiations and sharing of meanings through discussions and various forms of collaboration seemed to be an essential part of many student teachers' way of planning and implementing lessons. Behind the way of acting was a conscious application of humanistic-constructivist principles:

Because the group was active and eager to discuss, the sharing of their previous knowledge to serve the common aims was successful, to my mind. (A-KK)

The students were encouraged to say their opinions (KL)

Adult students must have a chance to influence the planning of their studies. They must have possibility to share their experiences and conceptions with each other. (TLL)

My conception of meaningful learning made me choose cooperative learning as the teaching method. It emphasizes humanistic conception of learning and human beings. (KP)

I accepted the learners' opinions and expressed both similar and deviating opinions of my own with arguments. (A-KK)

Integrating *knowledge acquisition and knowledge use* was considered one of the most important aims of vocational education and, consequently, one of the important features of learning conception. Considering the application of knowledge, the nature of situational learning was also paid attention to. The need to focus on authentic tasks and take into account learners' individual orientations was connected with the application of knowledge

I try to enhance active and autonomous knowledge acquisition by connecting exercises to tasks which make students find solutions by themselves. (PR)

They won't be motivated to study long periods of theoretical studies. But, instead, after theories they want soon to test the idea also in practice. During the practical application they must be allowed to touch, build and solve themselves the mysteries of electricity. (HM)

Learning can also be extremely effective with the help of practical experiences. In that case learning takes place through the reflection and abstraction of the experiences. (TS)

This kind of learning-on-the job is much more demanding on the teacher than the so called learning about theories in the classroom. When the students do

“real work”, the teacher must be aware of much wider entities of knowledge than when teaching e.g. drawing ground socle of a house in the classroom. Also the responsibility is much greater when you build houses for people. Then the quality, work and sustainability must be faultless. (SE-H)

Assessment. When learning is seen as multiple representation of concepts and information, it creates the need to develop assessment procedures so that they are built in the learning process. Besides students’ learning outcomes, the contents of learning and its meaning should also be evaluated:

The learners must clearly understand the whole picture to which the matter is connected, why it is dealt with and how. Learning conception or not - repetition is the mother of studies, somehow the ever present haste should be banned. By repetition I don’t mean redoing or rereading, but applying things and evaluation through discussions. (TLL)

Each of them needs feedback according to his/her personality, as well as I need as a teacher... (SK)

I thought much of the influence of spurring and praise. I have never before thought how great their influence is. (HL)

The student teachers seem to understand well the *multiple representation of concepts and information*. They do not build their teaching on one theoretical view only, but they can consciously combine different approaches and theories. They see the importance of the holistic idea of the things in question, but they also understand that details are also necessary to master. For gaining this they present various points of view:

Although my aim is to teach in a constructivist way, behaviourism is not out of question either. (SE-H)

Although I question and reflect on the truth and applicability of many a thing, I obviously begin to turn slowly but steadily towards constructivist learning conception. I speak for communicative language learning... the language is learnt best when you do something with it ..., and when the things to be learnt are built into hierarchical schemes so that they are based on the images and thoughts of the learner. ... pronunciation exercises could be thought as such that behaviouristic features are present in them (HL)

In my teaching there are constructivist features and also a lot of influences from suggestopedy... communicative language teaching and experiential learning (TK-K)

I think that learning never takes place according to one learning conception, but it consists of constructivism as well as, cognitive, humanistic and behaviouristic learning. (TKu)

Creative processes. Besides information processing, interactive process and student activity (as quoted above) student teachers describe learning, as the outcome of student and teacher learning styles and strategies, as a creative process (cf Tynjälä 1997, 1999) and as *processes characterized with joy, pleasure and imagination*. In reflecting their learning experiences at the beginning of teacher education, they recognised strategies of relating and connecting ideas to seek for understanding. That is what they continue by implementing them in practice teaching. Pleasure, multi-sensory and creative aspects appear in the following way:

I realized ... that there is not the only one and best way to teach, but different styles. I learn best in the lecture-type lessons, but I don't myself teach in that way. (SE-H)

I played relaxing music at the background during group work, and noticed at once its positive influence on students. (TK-K)

The students seemed to think that they had fun during my teaching. Is it allowed to have fun during learning? My tutor teacher in the school gave feedback saying that studying cannot always be fun. She was irritated by the positive feedback that I received from students. I think that studying can also be a hard work, but meaningful. (AB)

Linguistic-conceptual domain, ... visual domain ... (and) senso-motoric domain will be employed... It is evident that when students are allowed to move and touch, it makes memorizing the words easier. (TKu)

... rich learning material aimed at holistic, functional learning. It tried to appeal to various senses, the ability to see, hear touch and move, to feelings and experiences, images and imagination, to creativity. (KL)

They also define, surprisingly often, the teacher action in the learning processes via *teacher roles, visions and mission*:

The teacher is a supervisor, guide, director, and the situation must be under his/her control in the last phase. (HH-S)

In pedagogical education I have learnt that learning is a student's active work. The teacher's role is that of a supervisor's. Students must be made from passive listeners into active participants. (AS)

...the teacher should also take care of upbringing of the students in a vocational school. (MH)

I experienced supervising very meaningful and giving. ...The remark of an observer is really true: "tertiary level studies pertain to expertise and somewhat also to growing". (AJ)

In my teaching I always tend to guidance. ...Teacher's work is not only teaching but in the secondary level it is mostly bringing up. (TK)

...the teacher is towards his/her students a sensitive and encouraging supervisor and mentor, not an authoritarian with a pointer.(TK-K)

Values and attitudes. Values and attitudes are usually embedded in teacher roles or appear in the descriptions of teacher actions:

My upbringing has embedded me into "the syndrome of a good girl". Therefore I always want to be liked and accepted. This naturally leads to my need to act flexibly and *smoothingly* to find a solution which suits to all in the classroom. (HH-S)

The physical and masculine attitudes in the building site were so clearly sensed as if a wall had risen in front of me when I went there for the first time. Masculinity appeared for instance as taking risks in vain, showing off, swearing, throwing insults and spitting. I don't, however, accept the teacher swearing at the students... I think that the teacher can be him/herself, but he/she has to remember that he/she is also an example to young people. (SE-H)

There appeared to be only one student who mentioned *extrinsic motivation* and attitudes, in the following way, for instance:

The salary from the work is an important criterion when choosing a job. Moreover, the teacher has chances for self-realization and development in his/her work. The disadvantage in the teacher's work is evening- and weekend work. Working days can be prolonged for instance when the students have tasks in the laboratory. (AS)

Fellows (1994) wrote about the effects of writing and group collaboration in learning and found that students adopted new concepts and used them to explain new phenomena, or added new principles to their schemata and organised them more logically to generate more useful descriptions. Further, Vosniadou (1994) assumed that if student teachers' everyday experiences of learning and studying are based mainly on situations that reflect the behaviourist view of learning, their conceptions of learning will develop in the same direction. The present study material shows that a learning environment based on the (socio-)constructivist view may influence the students' views of learning in the direction of constructivism. The point of view is expressed in the following quotations:

I have developed in the respect that I give space to the students to learn themselves, i.e. I try to get rid of traditional behaviourism. I only wonder why it is so difficult to get rid of the traditional pattern. ... My own school experiences are really deep, you cannot imagine any other reason. It is interesting that I have to confirm myself many times that I am on the right track when I let students acquire knowledge themselves. (AJ)

... I have thought hard of the constructivist learning conception and the implementation of teaching on the basis of it. It really works, and it gives, to my mind, splendid chances to differentiation in a heterogeneous group. A real start in constructivism I got during the previous period of school practice, when I audited my tutor teacher's lessons. Her teaching seemed to be based on that learning conception. Although I was against that way of thinking in the beginning, I somehow did not dare anything but try to plan my own teaching on the basis of constructivism. After reading literature on constructivist views in language learning I became more and more confirmed. (HL)

Student teachers proceeded neatly from the earliest knowledge-telling essays to knowledge-transforming ones. The latter describe the writer's thoughts when they are still developing during the process of writing. It requires an ability to think critically and reflect on one's thoughts and actions, as well as problem solving, communication, cooperation and life-long learning skills, which are the competencies of higher-order thinking skills as well. When adopting the constructivist view of learning they provided themselves an approach to creating educational practices that are in harmony with the requirements and prerequisites for professionalism in teaching. Professional literature and formal knowledge acquired through it is converted into intuitive knowledge in the process of deepening the understanding of teaching. The knowledge-transforming reflecting processes are enhanced by the writing process itself and collective reflection (see 2.4).

Transformation of mental processes. The following quotation, from a post-reflection essay after the collective reflection session, reveal how mental models (conceptions of learning, human beings and epistemology), are transformed:

According to my experience, the student wants to be noticed and cared. Would this be the so called humanistic conception of human beings? I think that the courses in pedagogical education have made sense and got meaning just in this phase when I think of my learning conception. The studies feel meaningful, and at the same time I reconsider the teacher's profession widely. I think of my essential conceptions of my students and learning. This is connected with pedagogical methods and their use. Before teaching practice I thought much of presenting my own personality and, on the other hand, if my expertise is enough. Now I have overcome my self-criticism. ... I am what I am, and everybody has sometimes a bad day. (TLL: post-reflection essay)

The same person concludes a little later:

My conception of learning and human beings is mainly humanistic, I believe that learning starts from the individual and his/her motives which, again, are created by his/her beliefs and feelings. (TLL Post-reflection essay)

Remarkable in the results in general are the numerous statements which emphasize learning as gaining the ability to apply knowledge and solve problems. On the semantic level they use the concepts familiar from educational theories and express their conceptions also with them. They also try to define the

relationships between different conceptions and their position in relation to them. Consequently, the essays go beyond simple definitions of learning; they contain definitions of learning, descriptions of factors influencing learning, descriptions of the learning process, descriptions of the learning outcomes and meta-conceptions.

Chapter 4.1. tried to explain articulated individual and/ or *formal* learning conceptions of the student teachers at the beginning of their education. Although personal and individual, it was greatly based on educational literature. Now the focus of the present analysis is the identification of their *informal* or *intuitive* conceptions of the learning process, based on their earlier conception and practice experiences. It explains the emphasis on the factors connected to implementing the process. Another view, different from that in the earlier phase of this research, is the perspective of *conceptual change*. It seems that the change includes adopting new concepts, redefining, particularizing or adding new shades of meanings to concepts and thus widening the theoretical perspectives.

How is the change observed then? To conclude, the contents of the concepts in the student teachers' essays have become more accurate and are often illustrated with practical examples. The student teachers are also able to link different concepts or aspects of concepts together finding them their appropriate places in their thinking. They are able to adopt more scientific approaches to the contents of concepts. Even the framework theories of the conceptions may change:

Although I still question and reconsider profoundly the applicability and truth of many a thing, I evidently start to turn slowly but steadily towards the constructivist learning conception. (HL)

Inter- and intrapersonal competencies. In agreement with Van Manen's (1991) perspective, it is in the pedagogical thoughtfulness that the essence of the teaching profession lies. It is a professional attitude composed of complex attributes: a sense of professional responsibility, moral awareness regarding the consequences of teaching, intellectual maturity and interpretative mind, openness to criticism, a passion for learning, and, not the least, caring for the well-being of the students. If teacher education programs value diversity and creativity as opposed to standardization of teaching practices, they have to include reflective ways that are conducive to a humanistic vision of teaching. Self-directive and spontaneous practices of participatory collegiality are *sine non qua* conditions of teaching quality.

An individual's professional self is seen as the outcome of a self-organising process in which personal impulses and a desired picture of a self are balanced. The teacher's beliefs affect the kind of knowledge the teachers assimilate, and integrate into their conceptual framework. The problematic situations in a teacher's work act as a locus for reflection and change. It is both reflective and collaborative and not sentimental. In this study, in the last phase of their education, the student teachers have reached the stage where their beliefs seem to

be becoming flexible when they are explored in relation to the person's professional self.

The descriptions of personal interactive skills in this study have been dealt with in two main groups: intrapersonal and interpersonal domains. The next chapter will concentrate on the student teachers' expressed self-concepts and identities as well as on their views of self-efficacy, self-direction and self-reflection seen from the angle of real experiences of school teaching.

Intrapersonal domain. In the struggle for authenticity amidst vexing questions and perplexing dilemmas inherent in the daily practice, teachers try to discover their true selves as responsible professionals (Grimmet 1996). Adult, second or third career student teachers are experts in their work fields. Thus it is not unexpected that their thoughts circulate around their personality, what they look like as teachers in the students' eyes or if they are suitable to teaching.

Experiences of the outer world are important in creating the meaningful picture of the self. We give meanings to experiences, and it leads to understanding them. In understanding, or when the process of meaning making proceeds, the things are coloured in a new way and the bits find their places in the whole picture. In exploring the meanings we find interpretations and deepen our awareness. It is the mind where all that takes place, and the ego is the centre of creating meanings. The ego is able to be built once and once again. (Rauhala 1981, Knowles 1992.) Critical experiences (see 4.1) and reflecting on them makes it possible to create new meanings, which leads to transformation and greater awareness of oneself as a person.

In exploring experiences the cognitive and affective are intertwined. The experiences are not transmissible to another person, since the language is never enough to express them totally. This does not, however, impair the trials to study them. The aim is to pursue awareness and self-understanding which are necessary in transforming the activities and behaviour of an individual.

According to this study, in intrapersonal domain the self-concept and identity seemed to describe a more or less stable feature or the qualities with which the student teachers entered their practice teaching. Self-esteem and self-efficacy appeared in action or as the result of action. Reflection and self-direction appeared as self-evaluation and development tasks that the student teachers gave themselves.

Self-concept and identity among the student teachers, after finishing the teaching practice, is mainly positive (2/3 of the statements). They trust their personality to be suitable to teaching. Besides trust in themselves they also show openness in writing of themselves:

I think that I can be flexible with students. (HH-S)

Because I am rather concise and serious as to my personality, I don't believe that I can change my behaviour much, but presenting the matter in an interesting way, illustrated with practical examples will probably increase the students' attention. (LK)

I am a relaxed a type, I was not nervous beforehand. (TK)

The positive feature was that I succeeded in being quite myself in the lessons (TKu)

I told with a dry mouth about my working history and present job. The students followed the presentation attentively, which showed at least that they were either polite or it was worth paying attention to my personality. (AP)

I knew that I was a very motivated, enthusiastic and motivating teacher. (TLL)

Earlier in this study student teachers described themselves as emphatic, conscientious, rightful, open, innovative and having sense of humour. Now they have come down to the earth and meet themselves as they are, sometimes even showing too great criticalness.

Features that they experienced as negative concerned their uncertainty, impatience, defective substance knowledge influencing on their way of being a teacher, dependence on others and inability to react in the optional way:

To sum up, my teaching was an ordinary effort. I learnt, however, how small I am and how much I have to learn about pedagogical things and building houses. I suppose I will never be ready, but by exercising I will perhaps move forward. (SE-H)

My weaknesses are impatience and low tolerance. I find it difficult to wait. I hope that I do not show it to slower students and that I do not go and do the task myself if I see that students do something wrongly. As a high-tempered person I sometimes say things that should be left unsaid, which does not succeed in the school context. (SaKo)

My self-confidence happened to be low during the time I had teaching practice, so I did not have any effort for creativity. (SK)

Self-esteem and self-efficacy (1/2 of the statements) were put to test in the practice period. The student teachers paid greater attention to them than to simple identity questions, although they are interconnected. Interaction between self-concept and success in the complex work of teaching gave the student teachers moments of joy or, in the opposite cases, moments of self-study:

I won the boys' confidence gradually, when I was able to explain things to them. I also noticed that they put me to trial by asking difficult questions, and the attitude was that "you tell now as you are supposedly a building engineer" (SE-H, female)

Practice was the top of all teacher education when evaluated afterwards. In it I had to put all my personality and the things I had learnt at stake, and it was evaluated. I stayed alive, so it made me stronger. (SE-H)

Gaining the trust of students helps in active groups, too. Trust is not attained at once but it must be earned. (AJ)

I am very pleased with my action as a teacher, especially after the feedback in the morning from my tutor teacher, how she commented on my way of being a teacher. (TL)

The disappointments are written about openly, which shows mature personality and supposedly leads to development. Without honesty no growth will take place:

I think I should not have presented things that I was not convinced about, or I should have dug it out from somewhere, for instance from the net files as student activity. (SK)

I was not confident with my ability to tell of the matter so understandably that the students would get a sufficiently good picture of the nature of the lesson content. (AP)

The person above, as most other persons who had had moments of uncertainty, had also experiences of success from other situations, on other days:

When the day was closing I thought intensely of the situation and how I should have acted in it, and I came to the conclusion that I could not have done better with this strange event. (AP)

The feelings of change in self-concepts and self-esteem/efficacy concerned the changed perspective of self-assessment, of understanding the teaching process as a whole and of seeing one's own growth:

When reading my learning protocol during the whole span of teacher studies, I notice how much I thought I knew at the beginning of the studies. The longer I have proceeded in my studies, the smaller have my thoughts of myself become. ... Luckily you can develop as a teacher all the time, and you will never get ready. I am convinced that I have undergone huge development during my teacher education. (SE-H)

To sum up: this practice period gave me such experience that not until now have I become a bit more mature in these pedagogical things. When I was made to plan and think beforehand everything needed in lessons, I then came to think of all the courses that I have passed during my studies. It was not until now that I understood. Thank you! (AB)

... I am a perfectionist by nature. I do not want to leave things in halfway, and I do not want to give things out from myself to be evaluated by others if they are not ready. One important lesson from my practice is connected with it. In life,

like in the classroom, you will meet unexpected situations to which you cannot prepare yourself beforehand. The most important thing then is to be yourself, to rely on your ability to act right in the situation and to risk your reputation. If you do not sometimes succeed in doing this, you have still learnt a lesson. (HH-S)

The feeling of change got greater dimensions in two students' essays who had had inferior self-image and weak sense of self-efficacy in their previous jobs. The participation in teacher studies and the experiences in teaching practice gave them insights of the direction of their future efforts:

In the beginning my self-confidence towards succeeding in teaching practice was very weak. The period made me assured that I will be able to work as a teacher, but I have still much to learn about it before I can enjoy it. The period was both professionally and personally significant. During the previous years in my job (as a social worker) I have met difficulties which have greatly ruined my professional and personal self-confidence. (AK-K)

During my teaching practice 3, I experienced something extremely important: perhaps this is after all the right profession. (HL)

Despite of the moments of realization and feelings of change, the student teachers take a realistic view and give themselves *developing tasks*:

My development task in the future will be to learn to pay greater attention to the students, their opinions and experiences during my lessons. (AJ)

I must leave time for creativity and developing new approaches in the future (AR)

After the practice I have come to the conclusion that I have to take a firmer touch of the reigns to be able to take my sleigh to the destination (SE-H)

It is noteworthy that if compared to the ideal teacher qualities and the realistic self-views of student teachers (in 4.4), the amount of statements as well as the variety of different qualities presented is much smaller now, in the phase where the student teachers "meet the reality" of the student groups. Other things than they themselves have become central and give reason for consideration and reflecting.

Interpersonal domain. Interpersonal skills are dealt with in 82 statements. Of them 34 concern interaction and atmosphere, 38 emotional intelligence. Sixteen statements tell of feedback collecting from students, while the experiences are reflected properly only in 4 statements. The line between the categories is not clear, since one sentence can include several aspects. The categorization is made according to the main topic of each sentence or passage. On the other hand, the border line between interaction skills and emotional intelligence is unclear as well. They belong to the same big group if we think of the goal where both aim at. The division is thus made for editorial reasons.

Student teachers go on with their multiple form of self-discovery. On the other hand this search emphasizes the role of social context in cognition. Social theorists posit that learning takes place in the mediation of social interaction, since knowledge is not an individual possession but socially shared and emerges from participation in shared activities.

Ways towards active learning are cooperation in knowledge creation and learning to work together. Promoting interaction demands social perspective to achieve deeper processes of learning (Niemi 2000). To attain active learning the proper attitude is needed from the teachers. Therefore it is utmost important what kind of atmosphere there prevails in the classroom and what kind of interactive skills the teacher and the group members have. The students and the teacher must have opportunities to develop their social skills in general and teamwork skills in particular. They include collaborative problem solving, sharing ideas and encouragement, understanding one's own and the others' emotional reaction and creating a participatory learning culture. In the next chapter the interaction abilities are taken into consideration.

Strange enough, compared with the intrapersonal skills of the previous chapter, the interpersonal skills seem to appear only in the reports of *positive experiences*. There are only a few comments on unsuccessful or neutral experiences. It is maybe due to the fact that teaching practice was only a short period and the learners were playing nice roles in their sympathy towards the student teachers. Or the student teachers felt their duties in teaching so strong and all-encompassing that they paid attention only to positive reactions. Whether true or not, the experiences of interaction and atmosphere were described in the following ways:

It is difficult to evaluate one's own human relation skills. I got, however, positive feedback from both students and the tutor teacher. They praised the atmosphere of my lessons as very accepting and open. We had a deeper conversation on this with my tutor teacher. According to her my natural and democratic attitude towards students was the basis of the atmosphere. (JA)

Due to the active and conversational style of the group, sharing the previous knowledge and forming it into common capital succeeded very well in my opinion.... I was grateful for the activity. Silence and not talking would have been frightening and stressing. (A-KK)

I think that one of my strengths is the skill of creating a good learning atmosphere. (HL)

Emotional intelligence is the ability to recognise one's own emotions and those of the others. As its name shows, emotional intelligence is nothing irrational, but emotions and feelings are an intricate part of cognition. Effective social behaviour is dependent on feelings and emotions just as much as on the

objective ability to reason. Emotions and their communication through expressions are born in *dialogue*, and they are shaped in dialogic interaction with other emotions that are constantly becoming. Bakhtin's (1981) notion of dialogicality shows that identity is linked to the recognition of others. The interaction with other people is precisely that defines our subjectivity, because without this moment of otherness we could not talk of mutuality, but only of the re-duplication of the self (Turski 1994). One constitutive factor of teacher identities is the desire for recognition, thus one aspect that figures centrally on teachers' emotions is that of self-esteem (Kelchtermans 1996)

When striving towards teacher transformation, teachers should develop their awareness of their emotional responses so that they can sort their experiences, their anxieties, their fears, their excitements and learn how to use them in empowering ways (cf Tiilikkala 2004). To challenge dominant views that see teachers simply as rational agents, the teachers need to connect to colleagues whose reflective self-strategies aim at re-defining the identities of teachers. The following quotations tell that student teachers are at the beginning of this path, learning to recognise and deal with their as well the learners' emotions and emotional reactions that appear among the rational contents of lessons.

When I was talking with this small group (with a wide range of ages and biographies) I also noticed that they need feedback each of them according to their personalities, just as I need as a teacher, some need encouragement, some attention, others empathy etc. I also noticed that I myself was less excited during the students' presentations, when I could act as a chairman from amongst the audience, while the presenters were in front of the class. (SK)

I myself appreciated the spontaneous feeling in the class. Perhaps the brightest glimpse of the best moments of a teacher's work was when in the last lesson one of the students jumped up and hugged me on behalf of the whole class and thanked for a nice week and good teaching. (HL)

... the students were perplexed somehow, because all became silent. The next move would be mine. I understood well that the situation could escape from my hands, and I felt rather helpless for a time. Nothing like this was planned! However, I was able to handle the issue in a way that the person who had told the sensitive history did not feel sorry for her openness, and the other students were relieved, and a good atmosphere was created again. (AP)

In light of the above quotations it is no wonder that collecting feedback from students at the end of the practice period was common. Accepting feedback from students is a sign of mutual respect and confidence. It is not a long time since teachers found asking for opinions from students about teaching an impossible idea. The general opinion has changed or is changing in Finland in secondary and tertiary education, partly in basic education as well. While teachers thought earlier that students can give no feedback, since they do not master the contents of teaching, they now begin to see students as customers and themselves as

education specialists selling their expertise in the market. To learn if their choice of teaching contents and methods meets the needs of students, they ask about it.

The student teachers of the present study compiled either structured questionnaires or preferred open questions to get *written feedback*. In their studies they had been advised not to ask about teaching as a teacher's enterprise, but as a shared experience. It means that students also told in how many lessons they participated, if they were active and involved learners and how well they feel they learnt the contents of lessons. The following quotations give glimpses of the feedbacks:

I collected written feedback of my teaching. It gave me joy and warmed my heart greatly. The feedback was encouraging and positive. The comments given were well argued. As a whole the feedback mediated thanks for paying attention to every student as an individual. I couldn't have guessed myself how important an experience it had been to the students. Fortunately I succeeded in it. (JA)

In the next quotation the writer reflects the feedback, its honesty and her own feelings and impressions:

The feedback is positive, but I dare to question its honesty. A student teacher can easily get the sympathies of the class: she is also a student, as if one of us and even under a continuous surveillance. The lessons were uneven in respect to the learner-centred approach, and the lessons were not learner-centred, either. I was also disappointed to my inability to create actively discussing atmosphere. In any case, the group is also able to feed their own atmosphere, and tiredness is catching among them. ... getting along with the students became soon natural and positive. I think I have sensitivity to notice what happened in the class and "read" students' faces and looks, but somehow slight excitement, feeling outsider" and sticking into the contents made it difficult to change my habits, although I noticed it would have been necessary. (MV)

The reports also show that the student teachers were careful to read the feedback and tried to change their actions:

Some comments were even flattering. In some feedback forms I was advised to leave shyness and was encouraged by the fact that courage will increase when I grow older. The feedbacks were given nameless, so although I may partly have received compliments, the course was perhaps successful. ... Due to the feedback, though, I altered my actions. (A-KK)

To sum up, the student teachers' writing of intrapersonal and interpersonal aspects of their experiences resembles story telling as a method of inducing awareness of their feelings and thus of helping them to understand what they are feeling. Student teachers' 'stories' about their emotions, thinking and doing can empower them, for the revealed affects, their emotions, thinking and doing can thus become productive starting points of their future action as teachers.

Further, reflections on the student teachers' emotions, actions and, more generally, on their biographies, and telling and writing of them, can contribute to successful coping with the sense of vulnerability which every teacher is familiar with. Deepening their awareness of emotional experiences of their work opens up possibilities to view their experiences from alternative perspectives.

When summarizing the feelings of change that were reported in student teachers' writings, there are several factors that might have also contributed to it.

1) Factors that are determined by the age-related life period of the student teacher, his/her biography and present cognitive-developmental stage as well as characteristics and responses to innovation (cf. Oja et al 1989) are to be considered. The present student teachers are adult professionals in several fields of expertise. Consequently, they have a professional self-view from one or two areas already. They have life experiences, families and maturity. Having background like that, they can either be closed to outer demands of change and adopt the role identity of their earlier work. Or they are more able than younger colleagues to see the importance of being able to act like a teacher, i.e. they are more than willing to change their role identities. In this study, the majority of the student teachers collaborated for the change, only a few remained as they were in entering the education.

2) Factors related to school culture and collegiality are powerful in the process of becoming a teacher, since they give role models for everyday practice and reactions. In the essays, these factors were mainly praised: the tutor teachers were helpful and the school community welcomed the student teachers. Later in the next chapter some cracks in this picture will be dealt with.

3) Factors related to the organisational and structural conditions, such as time, financial resources, competencies of developers and content of the development programs are constituents of the so called hidden curriculum. Some students could analyse what they experienced from the viewpoint of hidden curriculum, but most only observed the situations as such, unable to analyse the hidden contributions influencing their experiences. These factors will be spoken of later in this study.

Task Awareness.

The quotations to be dealt with in this chapter are 70 statements from 24 student teachers. The statements concern different aspects of the contents of teaching events. Task awareness was divided into six categories which are arranged according to their oftenness in the following list:

- constructing tasks
- subject matter/ discipline
- motivation
- material preparation
- communicating in context

- learner knowledge.

It is noteworthy that there does not seem to be a unanimous opinion what to concentrate on when reflecting on the lesson practice. Another thing is that the persons who reflected thoroughly on preparing and carrying out learning tasks or on teaching as a process (in the next chapter) are not the same persons who gave much space for reflecting on their self-views as teachers. The latter pass the question of the lesson contents very fast, while the rest explain and evaluate the teaching of the contents and the process of teaching more.

Constructing tasks and learner knowledge. Constructing tasks was experienced as the most important theme in the task awareness domain. It means understanding goals and performances which are profitable to the goals, constructing and organizing lectures, exercises and other learning events in the way that promotes understanding and learning through them. In this the learners' previous knowledge must be paid attention to, according to all student teachers.

The next quotations show that unless the students of the target group are not very familiar to student teachers, it will make the lesson preparation difficult for them:

I was most afraid of the theory lessons beforehand, since in them you can without noticing include too much contents for one time. Instead, I was not worried about laboratory exercises, for I am used to supervising them, and I considered the group very self-directive and skilful in practical work. Everything went, however, against my expectations: in the theory lessons which I was afraid of the contents and time were in harmony, while in laboratory work we met unexpected occurrences on two days, and the exercises became hurried and panicking. ... Luckily I was teaching just my own speciality area, gene technology which I have worked with for ten years. I had much practical knowledge which is not found in any course books. (PR)

I spent a lot of time for devising the core plan and planning the contents of the course. I was bothered by too wide contents requirements in relation to one credit week (40 hours). (MV)

I am interested in planning different courses. Along with it I have taken pains in preparing them as well as possible right from the start. Although all the themes I have taught have not been in my mastery, i.e. I had to recollect and repeat them first, I was pleased with the whole which I was allowed to create. I was eager to find new knowledge, perhaps too eager, for in presenting the essentials the material needs improving. I have, however, learnt that, actually, with the smaller amount of information that I bring to the students, I will get better results. (AJ)

As above quotations tell, the performance view of teachers, in order to make students understand the themes, offers a challenge. What got constructed in the lessons? Obviously it was an action or mental model. David Perkins (1998)

writes: “The performance view of understanding challenges the centrality of representations. What the learner acquires is not just a representation but a performance capability. Learning a topic with understanding is not so much constructing a representation to fit the topic as developing a flexible performance capability around the topic.” (1998, 55.)

The student teachers were confident with their ability to apply constructivist principles in their organizing learning. In constructing the learning tasks they themselves had to undergo a kind of discovery process which could appear either in vocational problem solving or in scientific research. The discovery ability is valuable when it is flexible and applicable in totally new situations as well.

Subject matter and discipline in teaching. Having sufficient subject matter skills is not a theme of major concern among vocational student teachers, not least perhaps because most of them have wide expertise in the world of work as skilled professionals (Nissilä 2005). When the subject matter skills have to be changed into the themes of teaching, it gives much more reason to think about. A student teacher who works as a music teacher in the field where the top musicians tend to become teachers after their international careers and where the teacher’s personal expertise is appreciated more than the skill of teaching is dubious about the significance of subject matter mastery alone:

Finding a common tone between the teacher and the student, creating a fruitful communication can be much more important from the viewpoint of learning than the overall musical expertise of the teacher. In the latter case the student perhaps adores his/her teacher, but it does not necessarily mean that he/she learns. (VR)

The greatest challenge concerning the subject matter domain was to choose the right amount of right level knowledge to the lessons:

After the first 4 lessons on the first day (or, actually, after the very first lesson) I noticed that, in fact, I squeezed into the students too much factual information which I had, however, tried to organize into digestible bits according to their thematic contents. ... On the following day it happened vice versa. When I introduced the circulation model of political economy, only after one hour and a half of the two-hour period which was reserved for it my material came to an end. Because it was possible I gave the reigns to the tutoring teacher. (SK)

Motivation. Motivation could be regarded as belonging to the interpersonal domain as well. Here the theme is approached through the learning tasks. It evidently shows the disciplinary thinking in vocational education.

Students’ work is studying, and the teacher is the foreman or manager. How does the theory of work role triggers fit in this context? Both student teachers and part of the students in vocational education have experiences of work life or they are working full time and studying part time. In the present material the best single motivator was fitting the contents of lessons to the real work life situations. Challenging and variable tasks and learning arrangements, possibly

graded materials and outcomes, similarity to real tasks in work life and opportunity to self-directed and independent work are considered the best triggers both in school and at work:

The motivation in theory lessons was based on interesting contents, especially on my own examples (from work life) with which I could argue the necessity of learning the theories from the viewpoint of understanding the whole work ... The motivation to practical exercises was based on the students' desire to work with their hands and solve problems independently. (HM)

Sometimes the motivation is based on some other, more immediate needs, as in the following example. It also shows that the language teacher knows how to soften the start of the lesson by creating the feeling of sharing and belonging:

I asked about and listened to the students' news and conditions, and then I told them what would come next ... The theme would be different eye diseases, and the theme hit to the point, for the students would have an examination the next day on that particular theme ... what a coincidence! (TK-K)

Motivating students is not always an easy task. No one of the student teachers told about unsuccessful efforts to motivate, but many cases had left them uncertain, not knowing whether they had guessed right or not:

The motivation and orientation of the students remained a problem to me. How on earth can I know which of the silent students had gained more interest in the theme due to the introductory presentations? The differentiation of learning appeared to be problematic to define, too. Did answering the questions show it? However, it was not a very conscious action. (AP)

Motivating students is the prerequisite for student learning. It is not sufficient though, without making information available, without lectures, verbal definitions, narratives, examples of cases, models and the different applications and problem solving tasks, which will be dealt with later in this study.

Material preparation. Preparing teaching material appeared to be the task of the student teachers that they considered, in general, very important. One reason for this might be that there do not exist the kind books for vocational school, polytechnic or university use that contain up-to-date and newest information of the field. Another reason may be that the succession of 16-32 lectures which was set apart from the tutor teachers' lessons was such as its contents was not well represented in the ready made material. The third reason was probably that student teachers, having the most up-to-date specialty from the working life, wanted to include it in their teaching. The material they prepared consisted mainly of hand-outs, power point pictures, transparencies, application tasks, problem solving and traditional exercises, as well as study material for self-directed learning. They also brought various gadgets and things to the class to illustrate the theories and applications. For the differentiation of the slower learners some of them made material which was easier than normal. That was necessary, because in some groups there were students with individual learning

plans and lowered standards of performance. About the material a student teacher writes:

The material for the course was to be prepared to consist of only the basic knowledge of the theme, however remembering that the students will have to learn to understand the nature of the problem and be able to show a person with drug problem to the welfare services he needs. The material for this course was to be collected and prepared by myself. ... (A part of) material that I had prepared was unquestionably the worst in all my lessons. The transparencies were written with too small a text (the idea was to pick only the essential points out of the text and write them down) and the film I had chosen appeared to be too difficult for the students to understand. ... after these experiences I have to concentrate better on planning the materials. Illustration was a more important factor in successful teaching than I could have believed. (AP)

Experiences like that were rather common. In preparing teaching material you learn from trial and error, if nobody supervises you. In many cases the student teachers were over-confident in their ability to make teaching material, until the truth was revealed to them. Not all had unsuccessful experiences, as the following quotation shows:

Into the theoretical part of the study material which I had designed I had gathered the central theoretical knowledge of the basics of microbiology, and it was meant for self- study. In exercises the instructions of the “applications part” were used as such. The hand-out served as the learning protocol which was evaluated after the course. For short presentations the material was given on transparencies. A learning game was designed to be used for differentiation or as a group contest to deepen the theory. Other illustrative material was plenty. (KL)

Unless the area of knowledge and know-how is simple, understanding it involves many performances, some of them being such as they demand that the student teacher knows what has been studied earlier. Preparing teaching material so that the logics of the science is kept clear and the sequences of performances profitable for understanding the area of knowledge is a demanding task. Technical improvements are easy to make when advised, but the importance of making information available, even in a didactically advantageous way, is an ever-present challenge.

Communicating in context. The teacher students in the present study invited students to put their *previous knowledge* and understanding in action. They met crucial questions: what do the students already know, what kind of learning and especially understanding can be expected from them, and what qualities should be embedded in deep understanding?

Earlier in this study the student teachers reflected on the kind of knowledge they were taught during their own study years. In this section they had again to go back to the basics. They seemed to have some differences in emphases,

whether they valued sophistication and higher-order calculus operations or stressed the practical use of the science, e.g. in mathematics or data processing science. Some emphasize detail and precision, especially in bio-sciences, others favour the critical analysis of contrasting perspectives, say in history. Different accents reflect diverse interest groups, the ways people interpret the world in which they live.

Education in the disciplines has tended to emphasize accumulation of information in students' minds, while education in practical areas has historically focused on learners' performances. In spite of differences in emphasis, most student teachers of the present study seem to appreciate qualities such as disciplinary accuracy, social relevance and critical spirit. Before being able to adjust their lessons to the target group, the student teachers have to become aware of the students' ability to master and use the knowledge that is topical in the lesson, their goal being to reach the level of understanding that enables students to use their knowledge in novel situations.

The above goals mean unquestionably organizing the lessons according to the learner centred approach of teaching. In negotiating with the students the student teachers had to make sure that they spoke the same language with the audience. Collaboration starts thus right from the beginning:

From the discussions with the students during the lessons and after the lessons as well as later from their written feedback I learnt that the most of the students experienced that they had learnt the things well in my lessons. There were, however, students who would have wished teacher directed repetition of the essential things once again after group works and cooperative learning tasks. The reason was that " we are used to the teacher dealing with these things" and "in group work you learn only what you yourself work for, since nobody writes notes". ... I remained thinking what the amount of autonomy among polytechnic students is. In general, students want to influence on teaching and be active, but for a part it is important that the teacher should dig the things out for them and serve them ready chewed. (HH-S)

We started "tuning" to the theme by finding cultural scenes in our everyday environment. ... As a teacher I can bring only the theory, the essence of the thing (to the learning situation) – the learners bring flesh around this theory. In doing so we share the responsibility of teaching and learning, it may mean a greater involvement in the thing. (TLL)

That kind of understanding performances, learning from reflective engagement in their tasks, learning from experiences sensitive to the prior conceptions brought to the occasion, and learning from active discovering core ideas will evidently be a fruitful approach to students and student teachers, to learners in one word. This means the ever deepening task awareness in their work.

Process Awareness.

Process awareness from a teacher's point of view emphasizes connecting the above described factors of task awareness and personal awareness into a functional whole in the implementation of teaching (figure 20). The process is like creating a red thread, a plot of a drama, and running it through the learning occasion, not forgetting to pay attention to any of the important factors needed for successful action. It can also be said that it is a teacher's practical knowledge that counts in the lessons, combined with the objective scientifically proven knowledge of the teaching contents.

Behind the teaching process are the mental states of a teacher as is explained and reflected above (4.5.6). They include knowledge and beliefs of teaching, thinking before, during and after lessons, practical arguments underlying teaching methods and their mental models. Including cognitions in this research tries to prevent the possibility of reducing the complexity of the process into effective teaching actions only.

It is easier, in general, to focus on the characteristics of what teachers know, for their knowledge is complex, diverse, idiosyncratic, rich, holistic and personal, or on topics about which they think, viz. routines, students, images and curriculum. More difficult is to give attention to the substance of that knowledge, to what teachers actually know or need to know about classrooms, content, and pedagogy, and how that knowledge is organised. The latter task, i.e. how teacher knowledge is organised will be approached in the following passages.

The following areas appeared and were explored in the student teachers' reports:

- action repertoire and organization: planning and teaching methods
- learning environment: quality, culture and collaboration
- controlling action
- general observations

The evaluation of the students is referred to in connection of mental models (4.5.6), since the student teachers seldom could realize their views of evaluation in practice.

When examining the numbers of quotations and their writers, the same preference concerning personal choices is seen again as in the previous chapter: those who concentrated on personal awareness are scantier in their comments on tasks and processes and vice versa. All student teachers studied, though, wrote about processes (148 statements). This shows how much easier it is to define oneself as a teacher through practical activities. Of learning environment the material contains 42 statements and of controlling action only 17 statements. Compared to the earlier findings in 4.3.3 the student teachers' fear of not being able to control the student groups has disappeared. Instead they reflect on the control in a wider framework now. Another change compared to earlier findings

on teaching methods is that, although the methods were written widely of throughout the study time, in this last phase of their teacher education they name and reflect the methods with greater care and practical understanding. – The statements will be dealt with in connection of four sub-titles: action repertoire and organization, learning environment, controlling action and general observations.

Action repertoire and organisation. In this chapter the focus is on planning teaching and teaching methods. *Planning* was the most time-consuming activity outside the classroom for the student teachers, if material preparation is excluded. On the other hand, material producing can be included in the holistic planning process, as well as possible revising the curriculum to fit the student teachers' special knowledge and expertise area.

Planning teaching for a group of students that is unfamiliar, as it happened in some cases, is creative risk-taking. On the other hand, core plan devising was also collaborative with mainly the tutor teacher whose help was supposed to support the student teacher in preparing the actual lesson plans. The supervisor of the teacher education college was in a minor role, mainly in contributing didactical hints to the core plan. The last minute changes could be planned collaboratively with the target group of students.

Collaboration in planning provides opportunities to shared expertise. To be successful, it presupposes capable partners who know the students' needs, understand the goals for learning and master the logic of the substance area or discipline and the application and performance aspects connected with them.

Of planning the student teachers wrote 28 statements ranging from positive feelings of success to reflecting on failures. Of the time-consuming nature of the core plan writing the following statement says that:

The first thing I learnt was that core plan making must be started in time. I called to the tutoring teacher just before my practice period, consequently my planning remained partly defective (evidently rather much). I planned the first day teaching to proceed by lecturing and transparencies completed by discussions on the corresponding themes in students' real world. (SK)

The difficulty of planning for the group that you don't know and of the content that is not defined is evident in the following:

The core plan was to be written in good time, so I was to do it before I had been able to check the timetables and closer definitions of the practice. First I was also nervous that I was not told at the start which groups I should teach and which themes or chapters of the study book I should handle with them. Fortunately my tutoring teacher understood my situation and after all informed me in good time of the groups and chapters devoted to my teaching. (TKu)

The lesson plans were more flexible to design, but they could bring various kinds of surprises:

I want to prepare my lessons well. I feel that students appreciate that the teacher is involved in her work, and this on its part promotes their learning and motivation. (HL)

I also had enough time to get an experience of not planning a lesson properly ... On top of everything the theme of the lessons was less familiar to me, and I didn't quite catch from the discussions with my tutoring teacher from which point of view she wanted me to talk about the thing. This all became evident in the lessons: the contents were hollow, timetable was halting, and I didn't succeed in getting the students along in the discussion. (HH-S)

When teaching theories I didn't use the study book as teaching material, reading it to the students, since they have the same book and they are able to read themselves. I had studied the chapters which belonged to the contents of my lesson to know myself what the book contained. The things that I had on the transparency were the ones which I had picked from the book, added partly by things from other books and from my own experiences. When observing the lessons earlier during my teacher education I noticed that teachers were reading the book aloud in the lessons only. I decided then that I am not going to do so, because I don't think it is meaningful to follow the text which I could read myself as well. (SaKo)

In the post-seminar report AP writes a summary of his experiences in planning:

The teacher education which I got did not become understandable to me, as a matter of fact, until during this last practice phase. It would be useful for a novice teacher like me to see the practical tasks connected to planning more and earlier. How it is possible in practice, I don't know. The most important thing that I have got is the "provisions" from you with which the work itself will be successful. (AP)

Teaching methods. Methods are described vividly in the present material. The rest of the chapter will concentrate on commenting on them. They will be presented in the order in which the main principle of categorization is the amount of responsibility and initiative in the process from teacher via shared responsibilities to student or external expert. In the school context, however, the initiative is mostly the teacher's. The following methods were mentioned, described and evaluated:

- Teacher directed methods are *lecture, narrative, questioning and discussions*. This includes also dialogue and collaborative discussion. The teacher is also responsible for *demonstrations, illustrations, integration and differentiation* (68 statements).

- Among learner-centred methods there are *methods which develop thinking skills* (learning by writing, mind maps, and disputations), *creative problem solving* (problem-based learning, learning by researching, creative group work and pedagogical drama) as well as methods representing *learning by doing* (exercises, mathematics tasks, laboratory work) and *learning by collaboration* (small groups, traditional group work, cooperative learning, project work, work stations and learning games) (56 statements).
- Work life oriented methods refer to *excursions, visits* to various places of work and experts' visits to schools (4 statements).
- General statements concern mainly the concluding remarks of student teachers about "variable teaching methods" i.e. not sticking to one or two methods (20 statements).

Lecture, narrative and discussion. Lecturing is an economical way of equipping learners, a small of larger audience, with new information. Listening to lectures is in general regarded as a passive way of receiving information. In that case the learner accepts the information, but does not link it with his/her earlier constructions of knowledge in thinking, perhaps because of the lack of required pre-knowledge or advance organizers, or he/she is not, for some reason or other, involved in the task of learning. Consequently, this kind of superficial knowledge is likely to be forgotten soon.

On the other hand, lecture can be a very learner-centred event, if the learners have the necessary cognitive structures and are intensely listening to the lecture thinking 'this is what I need at the moment'. In this case the lecture is a very meaningful event and produces good learning, especially if the audience consists of persons with auditive learning style preferences.

There is a long tradition of lecturing in our school system. It has been regarded as the academic way of teaching and learning until these days. With the changes in learning conceptions, the resource pack of teaching even on the academic level has started to change. This change is especially necessary in vocational basic education where the learning tasks are more practical and application-oriented than in tertiary vocational education. Although still calling their teaching lectures, most of them include discussion and other collaborative elements in it.

In vocational education bridging the gap between school-internal and school-external learning (on-the job-learning, contextual and apprenticeship learning) has also brought different approaches to the nature of learning, diminishing the time spent in pure lecturing. Instead, student teachers often speak of short information presentations, calling them either "teaching", "lecturing" or "data shows", meaning a teacher directed introductory part followed with some collaborative activity. The following example, though, tells of the situation in which lecturing is the only reasonable way of approach: the group is big and the amount of contents relevantly great.

My teaching was lecturing. The students looked concentrated. It was a pleasure to teach, since there were no disturbances. Lecturing would not have succeeded to a big group like this, if students had been younger, secondary students. ... I would have hoped for a smaller group, for in that case I could have used more varied teaching methods. Four hours lecturing is too much at a time. This became evident, for the number of students present was lower in the last lesson. (TS)

The next student teacher is afraid of changing the method which he has got used to earlier, because he now meets an unfamiliar group and is not certain if his subject knowledge is sufficient. Thus he chooses lecturing and transparencies which keep him easily on the track during the lesson:

I base my arguments on the fact that my own knowledge of the subject matter is from 15 years ago. During the time when I was working as a teacher, one year's time, I used this same method, and now it seems difficult to get rid of. ... Even my conception of my flexibility in using different teaching methods applying them according to the situation has not yet developed to the level that I could realize them. (SK)

The lectures were made vivid with different ways of illustration. One of the most effective ways is the narrative method added to lecturing. Student teachers had learned that an example story from real life helps students to understand the more or less abstract ideas better:

I consider it important that I can tell practical examples of tourism which is my expertise area. (AR)

Sometimes narratives can act as metaphors. Unfortunately using them was not very common:

The first and second time started with my reading aloud a story which was adjusted to the theme of the lesson. It silenced the students and made them concentrate on the subject. At the same time the story acted as a motivation and orientation to the new theme. To the start of the other lessons I was not successful enough to find a proper story (HH-S)

Besides lecturing, conversational proceedings in the course of teacher directed program were felt fruitful and motivating. Sometimes they were teacher-initiated and may be called teaching via questions, sometimes they were collaborate by nature. It is notable that student teachers do not always describe what kind of discussion is concerned in their reports. It is supposed that they are not enthusiastic with an examination-type of questions:

I think now that the teacher has to keep the class in his/her control, he/she does not cause emotional scars to a certain student with questioning teaching. (AB)

Most student teachers rely on a teacher-initiated discussion or dialogue between the teacher and the students. This kind of collaboration can be more or less directed and pertaining to a certain aim, as the following examples show:

By asking everyone in his/her turn we made a covering presentation of the applications of the gene technology today. (PR)

Another student teacher has a dialogue with the class, thus constructing the theme and also paying attention to various points and views and, supposedly, the values behind:

I do not think I was mistaken to favour passive learning, I tried to evade it consciously. Criticalness was given space. I accepted the students' opinions and expressed my argued views whether they were similar or deviating. The same active style which had been characteristic of the group earlier was allowed to go on during this period. ... I had reserved light material, for instance poems, for the lessons, but they were not used, because specialist discussions were ample. (A-KK)

The next student teacher understands the significance of connecting her earlier experiences to the present themes and thus help learning:

During the course of lessons I spent a lot of time asking questions and charting the students' experiences. Through this they could combine the themes dealt with their own experiences. Asking questions helped me to react immediately, if a thing did not seem to open up. (JA)

It is, however, to be remembered that asking questions and making people discuss is not an easy task. It requires preparation and practice:

I had a lesson on what happens if the themes are not properly prepared. .. This was all evident in the lessons: the contents remained hollow, time resources halted, and I didn't succeed in making students discuss. (HH-S)

To conclude, although utilizing lecturing, the student teachers understood the disadvantages of passive listening. They resorted to lecturing because they were not courageous enough to try methods which were not equally familiar to them. They tried to interrupt the teacher monologue with several kinds of discussion tasks and application exercises. They noticed that making the students discuss is not a method that succeeds without preparation and planning.

Compared to their expressions about teaching methods during the observation phase of teaching and learning, when the student teachers were enthusiastic with student centered methods, they seem now to understand more concretely that various methods need practising more that they have been able to do. It is also now that they realize the real advantages of good planning. Some of them learn it through positive or negative experiences in practice.

Demonstration, illustration, differentiation and integration. Illustration in teaching is ever-important in vocational teaching. The frequency of illustrative actions seems to be dependent on the level of vocational teaching: whether it takes place in secondary vocational school, in polytechnic or in university. In general, the division of the nature of contents may be described so that

- in secondary level the subject matter teaching emphasizes activity in the area of science and the ability to use and mend artefacts
- in polytechnic level the question is about activity, planning of applications, construing artefacts as well as using and supporting action based on the research knowledge of the area
- in university level the phenomena are approached as science, attention is paid to exploring the basic rules of action, developing new and older artefacts as well as to devoting to scientific research and development work.

Due to different orientations, the student teacher practised demonstration and illustration in different ways. Similarly, differentiation was not such a problem in university or polytechnic level as in secondary level. Integration of themes can be made use of in any level. The following examples tell of illustration and demonstration:

As a visual person I tend to draw figures and tables, so I wanted to draw a figure of the orientation basis which I should have simplified a bit more. However, my insight was that it is a very useful tool from planning up to implementation. (MV, polytechnic)

Slides, pictures, books, maps, videos and other material had a central part in bringing the scenery into the classroom during my teaching. (TLL, polytechnic and university)

In connection of components I brought concrete gadgets into the class. The illustrative equipment that I got hand of worked well. The students were enthusiastic to study them and explain the data information of the components. ...Illustrating mathematics exercises did not succeed well enough. It was difficult to find sufficiently simple examples. I do not think I succeeded in using the mathematics example. Part of the examples which I told made students, however, eager to study the thing. (HM, secondary)

Of differentiation HM (above) states:

Differentiating theory instruction is difficult, because I know students badly. ...In practical work differentiation is easier.. (HM)

Of integration there were only a couple examples which were mentioned in reflecting on planning.

Methods developing thinking skills. This title refers to writing, mind-mapping, disputation and self-directed learning as ways of approaching learning. Writing

followed with collective reflection is one of the study methods in vocational teacher education. Writing as a separate method of learning in student teachers' repertoire was not mentioned, but it appeared in connection of other things. Later it will be dealt under group work, pair work and research as learning methods. In the present, the following examples illustrate the thing:

... the haste in laboratory work; the students did not have breaks e.g. for writing the learning protocols... (PR)

... the reports of laboratory work which acted as learning protocols and were evaluated later on. (KL)

Mind map techniques and conception maps were used more often: to sketch the outlines of common understanding before proceeding to learning new things, to collect the facts that were learnt and to start any kind of creative action. In the following statement the student teacher directs making the common mind map (which is not the best way: people should make their own maps, since cognitive constructions are not alike):

I gave each pair two different pictures. From pictures the students had to collect words and images connected to quality. Some of them found it difficult to get started. ... I wrote all the words the students suggested on the blackboard. We talked about our results. I think I succeeded in getting the conception of quality to everyday level. (AR)

Disputation is not mentioned as an organized teaching method. Some remarks tell that the student teacher and students were not always unanimous, but the different opinions were argued so that everyone could see each other's point.

Creative problem solving. In the present study creative problem solving appears as research and drama pedagogy. Problem based learning does not appear as a method – only ways how students collect information themselves are mentioned. They are reported in connection of self-directed learning. The reason for not using the PBL method might be its novelty. Neither were tutor teachers eager to encourage its use nor student teachers themselves ventured it.

The following examples illustrates research as methods of teaching:

My challenge was to combine the practical work of action therapy, research themes and thesis processes as well as the contents of other studies into examination of the phases of research process, in which I succeeded rather well, to my mind. (MV)

The last day passed in the presentation seminar; the students presented their researches which had been decided on at the beginning of the course. I acted in the occasion as a supervisor and chairman, partly as evaluator. (SK)

The pedagogical drama appears as a method in several student teachers' lessons, mainly in language lessons. The following represents, however, another field of science:

I started in the morning with a small drama exercise. Half of the class formed a traditional organization. I gave the students advice how to act, what to strive for. The outcome was rather successful, a bigger group would have been better. The other half of the class formed a learning organization. The students told about their feelings after the role play. The atmosphere was relaxed. Role plays deserve to be used, if you invent a task suitable to the situation. (AR)

Self-directed learning/ autonomous learning was well represented in the material. Unfortunately all student teachers didn't describe occasions very carefully. Some of the statements only tell that the students were allowed to find information themselves. If all mentions are counted, though, the attitude towards self-direction and finding information autonomously is positive, as the following quotation shows:

I tried to enhance active and self-directed information finding by adding to practice work task which the students had to try to solve by finding information in the Internet. Similarly, during the theory lessons the qualities of restriction enzymes were studied by pairs, finding answers to question in the catalogues of molecular biology. (PR)

Learning by doing. This section includes all kind of exercises, mathematics tasks, laboratory work and practical application exercises. The concept 'learning by doing' has been transformed since the days it was introduced by Dewey. It is understood in this context as the practical application of theory for better understanding, strengthening the mastery of skills by repetition and exercise, or the order of learning procedures: start by doing, understand later. Exercises of all kinds were considered important in vocational learning:

In the lessons we practice necessary arithmetics exercises. (HM)

The works went as usual, and most students could complete their tasks. Part of the boys seemed to have other targets of interest than laboratory work, but even they got, after a short tutoring, their tasks ready during my two laboratory lessons. (TK)

Practical applications of the learning tasks are told about in the following:

This kind of learning to teach through practical work (in a building site) is much more demanding than teaching in the classroom. (SE-H)

Our theme was temperature, pulse, blood pressure and vaccination. I had prepared different activation practices on the basis of the study texts. We started the lesson by listening to immunization and I also gave the text. After that the students were allowed to listen to the texts once again and then move in groups

to study the other texts of the day. I circulated among student groups and helped them if needed. (Language lesson, TK-K)

Collaborative work. Collaborative work, pair work, group work, workshop work and playing games are well represented in the material:

I gave the students four titles as a cooperative learning task. The students were divided into four specialist groups. The start was slow. Circulating between the groups all got started. The task aroused questions and pondering. Part of it took place inside the groups, part were dealt with together. ... The students taught the things they had learnt to the home groups. We made conclusions together. Scientific text was difficult for students, but it gave a conception to students what it is like to pick up the essential things out from the text. This was the first time that I succeeded in having a cooperative task totally. I had enough time for it. ... The experience was very positive. It was nice to see the enthusiasm and interest of the students. (AR)

Traditional group work as well as pair work were often reported. The latter was often used in an introductory phase when moving into a new theme, as if an oral mind mapping. Workshop work and learning games were also used:

... following the workshop method the students circulated and stopped to work at three places, activating their speech skills 20 minutes in each. In these places there were games and quizzes that students seemed to like, at least if measured by the expressions on their faces and the amount of laughter. (TK-K)

Work life oriented methods. Owing to the fact that many of the student teachers have close contacts to work life, as well as that the students are preparing themselves for the same, it is natural that work life contacts are made use of in teaching. The student teachers organized visits to places, e.g. to industry where students could observe the studied items and processes in practice. Or they invited experts from different organizations to tell about topical themes in general or defined themes to fit the course:

During the course we arranged a visit to the Oulu factory of Kemira Chemicals, where the students were allowed to see chosen processes in practice and sense the atmosphere of the factory. (TS)

After the lunch we went on discussing about values. First we took under examination the values of Finnair. Secondly, we had invited the vice director of the school to the lesson ... he was asked to tell about the values of the school. (AR)

Awareness of work life, up-to-date observations and information of present day practices and equipment are important in vocational education. The student teachers could act in some cases as useful links between educational organizations and work life representatives. The nature of professional work may be different in different times and different environments or cultures. For that

reason teachers in general and vocational teachers in particular must keep their knowledge and skills up to date.

Learning environment. Collective action can play a significant, though sometimes hidden role in a teacher's and student teacher's work. To increase awareness of the role of working community and the tutor teacher's role between the community and the student teacher, the notions of them and the daily practices of the school were also categorized in the present study. Professional knowledge of the teachers is likely to be the result of the dialogues in which teachers do challenge each other, often informally. The schools tend to have implicit standards which are easier for an outsider, i.e. a student teacher to notice and make explicit.

The most numerous statements concerning issues of school cultural or collaborative environment (27) concerned the tutor teacher, her attitude to the student teachers and her relationship to the school staff. The teaching staff, and all working community were also mentioned often together with the standard of the equipment and teaching resources. Students were spoken of in only 4 passages, as were the supervisors of the teacher education institution.

The tutor teachers were appreciated, and they were felt to be on the student teachers's side, in some cases after all, as is seen in the following quotations:

Somehow I learnt from the mistakes that my tutor teacher made in her own teaching. We are certainly very different persons. In spite of it we had it nice on teaching occasions, and no problems arose. At last I took care of all the preparations, and my tutor teacher came at the same time to the class with the students. (KL)

The situation in which I felt again very unsure was when my tutor teacher wanted to change the program that I had planned and was accepted by her. When I learnt on Thursday that the Friday program should be changed radically concerning the contents, I felt not only unsure but also perplexed. The main feeling was panicking. When thought afterwards, I after all got self-assured, since I was allowed to realise the earlier program with support of the teacher education supervisor. In my own opinion the original program was better and looked more like mine than the one suggested by my tutor teacher. (HL)

After a couple of days I felt that I was the tutor teacher's slave, and I was not allowed to do anything as I wanted. Then I made it clear for myself that he has given me a suitable part of his lessons which I am to realize according to his directions. The theme was luckily such as I had not taught earlier, so it was easier to accept the directions of what the tutor teacher wanted me to emphasize. (LK)

My relationship to the tutor teacher was open, and I dared to ask her everything I needed. She helped, guided, advised, when I needed help. The most important was that I didn't need to feel nervous, but I was allowed to plan freely and realize my teaching. (AJ)

The student teachers were generally introduced to the other teachers of the school. Depending on the size of the organization, they learnt to know either the teachers of the same substance area or all the teachers. They were welcomed to the lessons in some schools, in others teachers were reluctant to accept them to observe their teaching. The following student teacher felt that she was welcome to the school:

Collaboration with other teachers is important in my opinion, as well as sharing common teaching material. Nobody is so perfect that she/he would not need to use the plans made by others or wouldn't let the others use his/hers. It saves everybody's time and pains. The best yield of my second and third practice periods were the discussions with older and/or more experienced teachers of different subject areas. (SaKo)

Of the teachers and all the working community the student teachers write:

The working community did not become familiar, since it consisted of many teachers, and there were no discussions in the staff room. On the other hand we talked a lot with my tutor teacher and we still keep phoning to each other. I was like a tramp ... (AP)

It was not nice to get advice that I should not ask other language teachers to open the classroom door, but I should ask for help from a guard. I think that the working community is characterized also with the advice not to tell other teachers that I made hand-outs for my students at school. Otherwise my tutor teacher would once and once again hear afterwards that your trainee did this or did that. (HL)

To my astonishment the activities of the school community in polytechnic are very many-sided. The teachers are required besides teaching many other things. Earlier I pondered the reasons why teachers claimed that they were tired. (AJ)

The quotations tell of various kinds of working communities and tutor teachers. The latter are generally up to their tasks or even splendid. They should, however, remember that they are responsible for the relationships of the student teacher inside the school. On one hand, the core of the practice period is the lesson practise. On the other hand, the process is included in a greater context of school community. The student teacher should deserve the same polite introduction to the members of community as all other visitors.

As to the equipment, resources and physical learning environment of the school, the above example of making hand-outs revealed one fact: everything is nowadays controlled in schools because of the economical depression a decade ago. The physical environment or the access to the necessary equipment was defective in some cases, like in the following examples:

Although the attendance in the course was optional, there had come plenty of students (over 40). The classroom was so small that more chairs had to be fetched from the adjoining class, so that all could come in. (TS)

Preparing the teaching event caused a lot of work. The previous weeks were full of work: I was responsible for the expertise, and the course would be held the first time in the premises in question. For me this meant building the physical learning environment from the start, planning the procedures, making the handouts etc. The sports holiday just before my training was quite a passion week, because I couldn't make sure if all the material had come. My worst presentiments came true: the fridge was missing, as was the sterilization equipment, nutrient bowls were missing, and the most of the things came on the last morning, so that I was unpacking things when the students came in. But I thought that it is for increasing the inventiveness and creativity that are needed from a teacher. I had borrowed some bowls from a "friendship laboratory", and the other things were replaced by imagination: we overcame the difficulties! (KL)

In general, the student teachers seemed to understand the many defects that they met in schools. They learnt that the financial resources are not ample in education today. They also learnt to find alternative solutions, if the missing equipment didn't allow them to choose the optimal way of working. To sum up: the realistic view to a vocational teacher's working day was the best possible developer of the attitudes and future expectations.

Controlling action. Classroom control was one of the things that the student teachers were much concerned at the beginning of their practice periods, when observing the lessons and getting familiar with the school activities. Now the concern was changed: they felt helpless in the nosy and restless groups, but on the other hand they seemed to have self-efficacy: they believed they would learn to work with different groups in the course of time and increasing experience. It is probable that knowing more about students and groups has given them self-confidence, and the tutor teachers have succeeded in giving them a sensible point of view to the problem of restlessness. The experiences with the student groups vary in the following statements:

The group that I taught was very motivated and eager, there were really no problems of control. The students were self-directed in laboratory practices, and they were willing to ask, if they didn't understand something. (PR)

Somehow, in the course of planning work, I managed to forget the importance of start motivation. At the first metres of the afternoon lessons this caused problematic moments, when the last rows of the class were difficult to silence and get concentrated on the thing. (HH-S)

When observing the lessons ... I noticed how the students were used to be late for the lessons which started at eight in the morning. Usually the question was of the same students, and the time being late was even one and a half hours. Unsure and excited I looked forward to the morning of my first practice day to see how many student would be present in the class at eight. And the surprise was

considerable; three of the students were present, it was really odd to introduce oneself to the class of three. Gradually the rest came, the last entering the room at 9.30. ... I didn't quite know how I should treat the latecomers. I saw to their getting the handouts, but didn't guide them any more individually so that the teaching of the others should not have suffered. (MH)

The problem described in the last example is obviously even greater than was written in the practice reports. It is evident that trainees were kept outsiders in daily problems like these. The last statement is from the secondary level of vocational education where the absenteeism and unmotivated attitude are more general than in tertiary level. It is moving upwards. It means a mission to teacher education: misbehaviour and drugs have come to school organizations followed by psychic and social problems. They should be paid attention to and future teachers should be given resources to meet them.

Another aspect is connected with the levels of identity and mission. A beginning teacher may be so focused on surviving in the classroom that he/she takes the role of policeman (identity level). This kind of teacher has quite a different influence on the students from the one who is conscious of the interests and needs of the students, and whose actions are rooted in a pedagogical ideal (mission level). Where the first teacher may invite a power struggle, the second often succeeds in creating an atmosphere of togetherness, so that the students also consider it important to work together in a pleasant and productive atmosphere. There were a couple of examples of the 'policeman's' identity in the present research material. The great majority has the mission level as their target, according to the material examined.

General observations. A great many things other than mentioned in the practice reports were talked about in the collective reflection seminars. The discussions were confidential, so nothing of them can be described here. In the follow up reports after the seminar the student teachers summarized their experiences in the following way:

After a great anxiety I felt a success that was nearly equally great.

I realized an important lesson, I noticed that I don't teach for myself but for the students so that they would learn.

I think that the practice period should widen the perspective of the trainee but also of the tutor teacher or the staff.

Teaching profession includes living amidst very different constraints. It will mean a huge challenge in the future and even today to the profession which is under a constant change.

The most immediate feeling is the confidence in my own abilities ... The appreciation towards a teacher's work also increased.

I got a lot out of my teaching practice, and I am thankful for it.

The education which I have got up till now became understandable to me only during this last practice period.

The quotations from several student teachers provide examples of the way that fine-grained examination of teaching can enrich our understanding of the process of learning to teach as it evolves in unique ways in diverse settings. The elements identified provide evidence of the developing system of pedagogical thinking underlying the novice teachers' views of their future work and the various ways of approaching to the daily chores in teaching.

Contextual pedagogy, of which there are also examples on the previous pages, and transformative pedagogy as well, call for a different professional identity of teachers. It is moving from a transmitter of knowledge to a promoter of learning by his/her students and him/herself. It involves a transformation from a figure with 'all' the answers to a participating learner, from a neutral transmitter of knowledge to an emotionally and ethically involved participant. Admittedly, such changes in teachers' professional identity and classroom activities are hard to attain. The classroom environment easily preserves and activates the conventional conception of teaching, whereas other kinds of settings activate the transformative thinking more easily, as is seen in vocational (teacher) education. Collaborative methods are increasing in teaching, as became apparent in the student teachers' writings. Collaborative inquiry might widen perspectives also among teachers and between school internal and school external cultures.

Professional Awareness.

Professional awareness appeared most often in the connection of developmental tasks that the student teachers gave themselves. What is the essence of the teaching profession? There is a great consensus that it is a professional attitude composed of complex attributes: a sense of professional responsibility, moral awareness regarding the consequences of teaching, intellectual maturity and interpretative mind, openness to criticism, a passion for learning and caring for the well-being of the students. The teacher education program examined in this study values diversity and creative subjectivity, for that reason reflective ways representing humanistic vision of teaching have been included in the practices.

The focus of the reflective reports was not especially in professional awareness, *in expressis verbis*. It appeared to be, however, a theme that was touched in several contexts. In the following only the remarks that were written in connection of developmental task at the closing phase of teacher education will be studied. The viewpoints range from external examination to the internal understanding of the profession:

My own goal in this phase of studies was growing as a teacher. It surely happened. PR

I think that a teacher's work is autonomous, but responsible and demanding. Teaching chemistry demands a lot from the teacher (especially concerning substance knowledge). To counterbalance it, the teacher's salary is really good. The teachers are paid in polytechnics and vocational secondary schools better than the average in other chemistry trades. The recommended starting salary in industry is lower. In communal tasks you will be paid much more lower salaries. I think that the chemistry teacher's work is well paid which is worth striving for. AS

Pedagogic theory knowledge we have studied this year; the planning, implementation and evaluation of teaching as well as some special areas of teaching, but the holistic view of teachership and teaching is created and formed only along working experience. MH

I believe that this will also remain in my mind: the teacher is responsible for his/her work to the students, school and the maintainer of the organization as well as to society, and this presupposes reaching a certain level of autonomy in the teacher's professional development. SK

It seems in the above examples that it is the individual intentionality that is decisive in the construction of professional self. The picture of being a teacher that each student teacher brings to the education program is also an important element in the process. Consequently, it is more than simply an interpretation of an occupational role: the professional self draws on the personality.

Secondly, tutors and mentors have to be aware that their personal views of the subject and practices connect with the identity formation of the student teachers. Mentoring/tutoring conversations have also a pivotal position in teacher education programs. They are necessary but not sufficient vehicles for providing student teachers with access to the wisdom of practices. Much might be gained from encouraging forms of team teaching, either between the tutor teacher and the student teacher or between student teachers audited by the tutor teacher. Tacitly held beliefs about practice might possibly be elicited. Supported learning in real life situations via team teaching should assist the student teachers to learn about the tacit knowledge becoming explicit.

Thirdly, this chapter has tried to look at the actions and the meanings of practices for participants as they engage in the processes allowed by their communities of practice. Their professional identities through described actions have been in the focus. A gap seems to lie between the understood theories, principles and methods and their realizations in actual teaching. That gap will be bridged by gaining experience and reflecting on that experience. Making sure that the future experiential knowledge will not remain tacit, it shall be made explicit only by becoming aware of the phenomena concerned.

The awareness of oneself as a person and teacher, of tasks and processes leads gradually to personal awareness. This is supposed to be the their order of

construction. The professional awareness is all the time in interaction with the other types of awareness, not in a given order, but depending on situations, times and tasks. The professional awareness can be more linked to personal awareness, e.g. in times of distress. Personal and process awareness can be in a dialogue for instance when experimenting new methods, which may be stressing to a teacher, in the fear of failure. The task awareness rises to the surface, when the teacher is to change the contents of teaching.

The process of growing appeared to be slow to the professional awareness among the student teachers of the present study, as was expected. The awareness seems, however, to come first, the practical skills in a vocational teacher's complex work follow after.

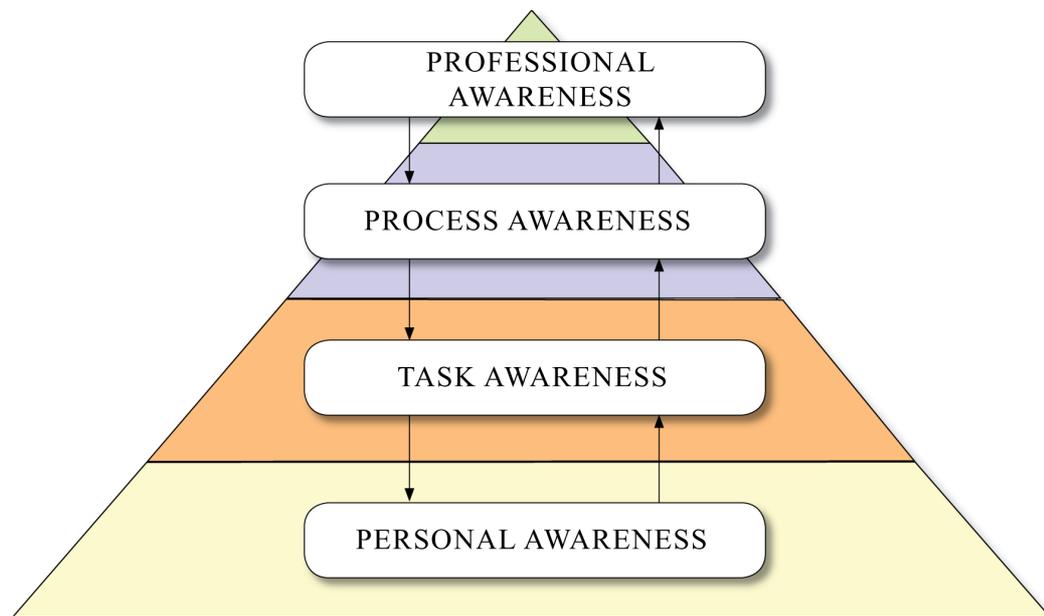


Figure 20. Professional action in teaching.

The summary of whole person engagement in praxis will be given in the connection of the next chapter under the title of Development towards Teachership.

4.5.4 Different Domains of Professional Awareness

How has the professional awareness been attained? A comparative survey of the main issues mentioned in three phases of development: preliminary entrance to school context, analysing one's self-concepts and actual practice may illustrate the change of opinions and levels of understanding acquired during the education period which lasted from 1 to 3 years individually. The themes are presented in the order of oftenness.

Table 5. Different levels of describing the personal, task, process and professional awarenesses on the time continuum of the phases 1-5 (1 – 3 years).

Preconceptions of learning and the self (beginning phase)	Preliminary observations in school context (mid-phase)	Self-concepts: ideal, realistic, potential concluded (mid-phase)	Actual teaching practice (closing phase)
<i>Interaction</i> *memories of experiences *concrete descriptions of learning and their personal evaluation	<i>Interaction.</i> *one-way and two-way interaction observed in lessons *collaboration problematic on institutional level *climate of trust and openness not self-evident	<i>Interactivel skills.</i> *democracy as a target in classroom interaction *interactive abilities and the qualities which are in harmony of those of EQ are enumerated	<i>Interaction.</i> *satisfaction with ability to deal with emotionally difficult situations *positive feedback *self-evaluation *deepening awareness of emotional aspects in interaction
<i>Discipline</i> *disciplinary consciousness *expertise valued	<i>Discipline</i> *expertise as an aim, the concept analysed *given more attention to than to pedagogy *a socializer (decides the communication partners)	<i>Discipline</i> *expertise availed of in teaching through good planning *work life experience and contacts highly appreciated	<i>Discipline and constructing tasks</i> *satisfied with competence *right timing and choosing the level of teaching will need more experience *work life experiences as triggers of motivation
<i>Pedagogical knowledge</i> *beginning of reflective practice	<i>Pedagogical knowledge</i> *discrepancy between official aims and practice *traditional methods vs. modern gives value to pedagogy *The traditionally low status of pedagogy in vocational field has started to change	<i>Pedagogical knowledge</i> *connected with mastering emotional aspects *pedagogical skills and situational sensitivity as targets of development	<i>Pedagogical knowledge</i> *”group-sensitive” planning * realization that the aim is not only accumulation of information, but attention must be given to performance, understanding and applying *ability to use educational terms
<i>Teaching methods</i> *teacher directed and learner centred recognized and described	<i>Teaching methods</i> *surface impressions,if the student has no teaching experience before *teacher free to choose methods * teacher’s tasks defined as motivating, choice of methods, material preparation and evaluation	<i>Teaching methods</i> *much reflected *mental models (aims, goals and values) mentioned, but not reflected *learning should be learner-centred, meaningful, applicable *planning important *motivation, differentiation, variety of methods reflected *practical knowledge of teachers appreciated *tendency to learn new methods in the future *preparing teaching material is a great concern	<i>Teaching methods</i> <u>Mental models</u> *human, epistemic and learning conceptions explicated and reflected *conceptions manifested in teaching, seen through teacher roles, visions and missions <u>Mental models were reported to have transformed during teacher education</u> *teaching methods – stress on motivation, activation and choice of methods *stress on learner-centredness BUT *choice of methods often teacher-directed added with collaborative work and

		*evaluation given only little thought	demonstration *methods developing thinking skills more seldom used *integrated knowledge acquisition and knowledge use methods appeared, as well as *self-regulation and metacognitive development of students was consciously aimed at
<i>Communication</i> *different communication habits noticed	<i>Communication</i> *observation:teacher talk concerns expectations and levels of student achievement *mainly understood communication as the qualities of voice, speech and expression *emphasis on non-verbal communication *humour, emotion as mediators	<i>Communication</i> *communication as the qualities of voice, speech and expression satisfactory	<i>Communication</i> *seen more widely and from a two-way perspective: *collaboration with students *shared responsibility with tutor teacher *communication for deep understanding of the matter *discipline oriented accents (precision vs. perspectives) *social relevance and critical spirit
<i>Control</i> * understood as a necessity *negative personal experiences	<i>Control</i> *keeping order is not always easy *not allowed to see controlling action in real problem cases	<i>Control</i> *worried about their classroom control skills	<i>Control</i> *no troubles to the extent as before *sound realism *identity or mission levels
<i>Personality</i> *self-image as a learner reflected, *image as a teacher becomes to open up	<i>Personality</i> *aim: skilful in interaction, expert in discipline, not false *a list of other positive adjectives describing the qualities of a good teacher *self-esteem *situational sensitivity	<i>Personality</i> *human relation skills analysed and valued highly, of them important: *empathy, sympathy, moral & ethical actions and esteem of self and others * situational sensitivity * expert image	<i>Personality</i> *self-concept and identity reflected – a realistic picture *self-esteem *self-efficacy *concrete developmental tasks designed (lifelong learning) <u>Feeling of positive change in self-concept and self-esteem reported.</u>
			<i>Environment</i> *the most important single factor in the practice: the relationship with the tutor teacher is reflected *relationship with the staff commented *deficient teaching equipment blamed
Preconceptions of learning and the self (beginning phase)	Preliminary observations in school context (mid-phase)	Self-concepts: ideal, realistic, potential concluded (mid-phase)	Actual teaching practice (closing phase)

The table shows that the conceptions, targets of observation and interest change from superficial towards clearly defined. It is aided by acquiring the names of the educational concepts they start little by little to use for expressing their ideas. Another change seems to be growing self knowledge which is obvious in the connection of several themes, not only in the personality column. The third feature to be noticed is the reported changes in self-image and self-esteem as well as in mental models (i.e. conceptions of learning, epistemology and human beings as well as of the values and aims).

When trying to find the main emphasis of the descriptions and reflections, the focus of the beginners and novices is evidently their concern with teaching methods and issues supporting the methods. In other words they ask themselves: How do I get to the aim? How do I make students learn? Experienced teachers are more concerned of aims and values: Where do I try to get? Is it worth attaining? When mastering the daily practices of teaching, energy will be released for looking further forward.

4.5.5 Pedagogical Thinking

Pedagogical thinking is said to be decision-making based on the personal belief systems. (Kansanen 1995). Jyrhämä (2002, 8) adds to it that it is a process of becoming conscious of the arguments and alternatives in decision-making, ending up in restructuring knowledge. Uusikylä (2000) and Talvio (2002, 160) see it as a complex process in which the teacher applies his/her knowledge intuitively in complex, continuously changing situations. Pedagogical thinking becomes visible in action (cf Krokfors 1991, Kansanen 1991) as an ability to conceptualize and model action and to evaluate the backgrounds, and conceptions. The decision is a result of combined rational and intuitive thinking which becomes concrete in the situations which demand immediate reaction and decision-making. Pedagogical thinking is not, however, mechanical, routine decision-making, although it may be reactions to given stimuli. Reactions are always preceded by reflected earlier experiences. What is here called reactions is the same as is called reflection-in-action by Schön (1987).

Pedagogical thinking is sometimes equalled to thinking of the contents and discipline or more often pedagogical content knowledge (Shulman 1986,1987). It is described as referring to teachers' interpretations and transformations of subject-matter knowledge in the context of facilitating student learning. In doing so it encompasses understanding of common learning difficulties and preconceptions of students. Having those ideas as a starting point, this study has tried to analyse student teachers' writings to see how they experienced and reflected on their action as teachers. A categorization has been made to analyse their course of thinking. Teaching experience has been seen as a manifestation of cognitive and emotional pre-knowledge, as action itself and as reflection-on-action after the events.

If pedagogical thinking is described as a model of levels, the *descriptive level* of action forms the basis with pre-, in- and post-active phases. This is where the subjective, practical theory becomes visible. It is backed by object or normative theories, here called the level of *pragmatic theories*, which comprise the individual teacher's adopted didactical norms. Higher than norms is the *level of theory and practice* which presupposes the support and awareness of theories in pedagogical thinking. The level of *meta-theories* is a demanding level presupposing an organized overall conception of teaching and of ontological, epistemological as well as philosophical aspects.

Besides the cognitive side of the process, the emphasis lies in the emotional and ethical or moral growth of student teachers as well. The analyses of the preceding phases have already yielded remarkable information of the processes. They were supposed to guide the student teachers' thinking so that they grow personally and have built themselves a preliminary personal pedagogical theory by the time they enter the final teaching practice period. According to Kansanen (1993) and Malinen (2000, 51) the development of pedagogical thinking proceeds in three phases: 1) the beginning phase 2) the phase of systematic thinking and 3) personal pedagogical theory. It is not demanded that student teachers have complete personal theories when entering teaching, but its development should have started. During the years to come in teaching it will develop and become more comprehensive and personal even in the meaning that it is achieved autonomously (Kansanen & Uusikylä 2002,6).

When evaluated according to Marton's (Marton et al 1993) or other definitions of development phases in higher order thinking, it is evident that all student teachers of the present study reached the second to the highest level, a few even the highest level of profound change, according to their own assessments. In accordance, the results gained in earlier paragraphs showed an amazingly mature ability to think and reflect on the issues met in learning and teaching contexts. It is supposed that the academic or polytechnic exams in subject matters at the background as well as educational science studies have a great influence on the present student teachers' thinking in general and on their pedagogical thinking in particular. This became clear even since the beginning of the teacher studies.

It is notable, though, that the results reported in the earlier paragraphs are the collection of the most illustrative statements on the issues in question, i.e. the ones which express a kind of saturation level from a number of student teachers' reflective essays at a time. The personal ideologies may seem different if they are investigated focusing on individual students. To get a conception of an individual student teacher's thinking, two longitudinal descriptions will be analysed. The writers represent different approaches and are typical of the person gallery in the research group. Since it became evident that it is not the sex, age or the level of background exam that caused differences in pedagogical thinking, they have been omitted as the criteria of election. Instead, the field of discipline

appeared to be one of the factors that influenced pedagogical thinking in the novice phase of teaching. When talking about the field of discipline, the persons that will be quoted later in this chapter represent the areas of 1) natural science (bio-chemistry) and 2) “practical” science (science of commerce). One more factor that causes differences in pedagogical thinking is the work experience as a teacher. The person of the first example in table 7 is a novice as a teacher, the second in table 8 has already a teaching job, and she studies part-time in the school of vocational teacher education.

The criteria of pedagogical thinking set out from the definition of pedagogical thinking as a process of making decisions. The other criteria of the phenomena connected with teaching events were reported earlier in chapter 4.

Table 6. Expressed qualities of teachers’ pedagogical competence and thinking among second or third career vocational student teachers. The descriptions represent the student teachers’ concise conceptions of the competences in teaching and are collected from the findings in chapter 4.

PROFESSIONAL AWARENESS
<ul style="list-style-type: none"> 1) autonomy 2) collaboration 3) awareness of oneself as a lifelong learner 4) understanding vocational education in a broader context in society 5) feeling of empowerment 6) points 7-22 included
PROCESS AWARENESS
<ul style="list-style-type: none"> 7) pedagogical content knowledge 8) interaction 9) integration of theory and practice 10) ability of planning 11) post-action evaluation 12) personal teaching philosophy 13) sense of situations 14) intuitive and implicit thinking during action 15) making decisions during action 16) reflective thinking on-action
TASK AWARENESS
<ul style="list-style-type: none"> 17) aims and goals 18) subject knowledge 19) knowledge of learners 20) knowledge of learning contexts
PERSONAL AWARENESS
<ul style="list-style-type: none"> 21) biography: reflected experiences 22) self-concept 23) self-understanding

The table illustrates how activity based competence teaching and even teachers’ thinking are (points 7-16). It gives reason to conclude that pedagogical

thinking is active in teaching and learning situations and is manifested in action. Teachers' tacit knowledge appears more richly amidst the complex processes of interaction than in their verbal reports. Making implicit things explicit is a way towards professional awareness.

The above mentioned criteria, enriched with aspects from educational research, are arranged according to their presence in pre-, in- and post-action in teaching in the following table (table 7). The levels are designed according to the skills of combining reflection and cognitive issues as well as the awareness of personal, cognitive and emotional aspects connected with teaching. The level of meta-theory is mentioned first and the other levels are presented from the top down: from level 4 to level 1.

Table7. Knowledge, action and awareness at the closing phase of teacher education presented on four levels of pedagogical thinking.

KNOWLEDGE pre-action	ACTION in-action	AWARENESS reflection-on-action
LEVEL OF METATHEORY	LEVEL OF METATHEORY	LEVEL OF METATHEORY
Deep knowledge and understanding of the wide contexts of society, politics and education, of responsibilities and rights of agents in education, in relation to ontology, epistemology and human rights Knowledge of the growth and emancipation of a learner as a continuing process Planning for the common good	Action striving for engagement in continuous learning and self-development Action showing broader purposes in one's work, e.g. in abolishing obstacles of learning Action emphasizing networking with colleagues and working communities in partnership for common goals Professional competence in action	What lies behind the explications of educational issues? Analytical awareness of oneself and the others as agents in relation to the development of education and educational networks in society, far and near Proactive reflection for understanding learning and teaching. Awareness of support to and from colleagues Feeling empowered
LEVEL OF THEORY AND PRACTICE	LEVEL OF THEORY AND PRACTICE	LEVEL OF THEORY AND PRACTICE
Knowledge of aims and goals in the perspective of values, philosophies and epistemologies Knowledge of self and others: self-understanding and understanding of the others Knowledge of learning-to-learn strategies and approaches based on educational literature, practice and reflected experiences Knowledge of life-long learning Knowledge of networks in society and education Planning for involvement	Action engaging holistic integration of aims, contents, learners and methods Action based on explicit theories of learning and teaching, expressed in personal teaching philosophy Action in relation to values and philosophies Making decisions in collaboration with those involved	What happened really? Thinking analytically of activities Reflection and self-assessment supported by theories Individual and group reflection of teacher and students Collective reflection with colleagues and partners Thinking of aims, methods, contents and learning environments from theoretical and practical perspectives
PRAGMATIC LEVEL	PRAGMATIC LEVEL	PRAGMATIC LEVEL
Knowledge of realizable aims and goals Subject knowledge for teaching purposes Knowledge of personal teaching methods repertoire Knowledge of learners as individuals Knowledge of the obstacles of learning Knowledge of applicable interaction Planning for individual and group learning	Integrating theory, practice and work-life expectations Empathy, ethical commitment, pedagogical tact (reactions) Situational sensitivity Personal teaching philosophy explicated in action Making decisions that are situation specific	What is the lesson of the experience? Thinking of action from the point of view of practices Self-assessment and reflection on pragmatic level Thinking of student outcomes Thinking with why-questions Thinking of the follow-up action
DESCRIPTIVE LEVEL	DESCRIPTIVE LEVEL	DESCRIPTIVE LEVEL
Knowledge of aims, goals, beliefs, attitudes, emotions, Subject knowledge Knowledge of contents and methods Knowledge of groups and learners Planning	Presenting contents Interaction "Doing right" Reflection-in-action (reactions) Personal teaching philosophy explicated in action Making decisions	What seemed to happen? Thinking of the action Self-assessment and reflection on descriptive level Thinking of student action Thinking of the outcomes

The above criteria will be applied in the following analyses. Two student teachers' describe their doings and thinking in the connection of their teaching practice. The quotations are taken from the reports as wide excerpts to show the course of thinking written in the reports. The core expressions are underlined to help the reader to catch the essential points and compare them with the explanations in adjoining columns.

CASE 1: The next student teacher taught secondary level students in the basic course of laboratory workers. The students had a matriculation examination as the background education. The student teacher has a university researcher's working experience.

Table 8. A student teacher's report of teaching future laboratory assistants on the secondary level. The excerpts of the core plan are attached to the reports. The events are mirrored against the plans and explicated conceptions

KNOWLEDGE pre-action planning	ACTION in-action descriptions Sample quotations	AWARENESS description & reflection on-action
<p>Out of the plan: <i>I am starting my teaching career, so I have a lot to be developed in all areas of a teacher's work. I have earlier taught only in university, so the greatest challenge will be adjusting the amount and quality of the material suitable to vocational students.</i></p> <p><i>Knowledge of the subject matter</i> <i>Knowledge of the learners</i> <i>Knowledge of timing</i> <i>Knowledge of practice</i></p> <p><i>Knowledge of necessary</i></p>	<p>...The things happened in another way: in the theory lessons which I was afraid of beforehand there was sufficient amount of contents compared to the time available,</p> <p>while in the laboratory exercises we met unexpected surprises in both of two days, and during them the haste almost devoured us.</p> <p>I had counted beforehand the amounts of necessary liquids, and</p>	<p>Out of the plan: <i>My own learning theory is based on several conceptions: basically it is humanistic-constructivist, but behavioristic ideas occur as well. I believe hum-constr epistemological conceptions of acquiring and processing information</i></p> <p>What seemed to happen? <i>Thinking of arrangements</i></p> <p><i>Thinking of student capability</i> <i>Thinking of her own anticipation; "Why?"</i> <i>Recognising one's own feelings</i> <i>Thinking of the</i></p>

<i>extra questions on molecular enzymes. Also the slower learners I will pay attention to with added supervision.PR</i>	Levels I and II	tutor teacher Levels I and II
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The writer's knowledge of action in the pre-action phase appears first in the attached quotations of the core plan: she states her conceptions of learning, epistemology and human beings. She also explicates her earlier experiences of teaching and differences concerning the present and earlier groups. In addition to the core plan texts, there are 17 statements of pre-action knowledge in the description of action. They are divided into different themes in the following way:

- 1) Knowledge of human relations (n=3 statements)
 - knowledge of learners and their abilities for differentiation

- 2) Knowledge of the discipline (n=1 statement)
 - subject knowledge and discipline (n=1)
 - other statements concerning the contents of teaching appeared in the connection of applying theory into practice.
 - educational science as a discipline was not mentioned in connection of action. In the plan the educational concepts were explicated.

- 3) Knowledge of the implications of teaching (n=13 statements)
 - organising the learning process
 - applying the theoretical knowledge into practice
 - finding material and equipment for lessons
 - teaching methods and planning. This area received half of the statements written about the whole theme of teaching implementation.

- 4) Knowledge of professional development was mentioned in the core plan, not inspired by the experience. The writer confesses that she is a novice and has a lot to learn in all areas of teaching. Instead, the experiences of action deal mainly with the questions of arranging the practice and taking care of the low achievers.

This student teacher emphasizes the knowledge of the discipline and its application in practice. In striving for that she stresses the arrangement of learning situations so that everybody learns how to do certain practical tasks. The practice oriented viewpoint is important when thinking of the purpose of the education in question: to prepare laboratory assistants for working life.

She tries to find a balance between theory and applications, cognitive knowledge and the ability to work in practice. The theory concerned is mainly that of bio-chemistry, not education. Timing causes problems, because her

working experience is narrow, that of a university researcher's. Another viewpoint which is important for her is to pay attention to everybody's learning. She understands the different abilities and skills of the learners and is willing to differentiate teaching to fit different achievers. She also tries to find practical ways to apply constructivism in student information acquiring processes: to find information independently.

In the reflection-on-action phase she thinks of the actions on the descriptive level of reflection. She gets a step deeper when she asks why-questions, actually silently in her mind, as is understood implicitly in the text. The targeting of why-questions shows that she is not used to working with beginners in the laboratory. However, after feeling haste and stress (expressed 4 times) the trials end well, in her opinion. The statements of reflection (n=20) concern:

1. Personal awareness (n=12):

- the writer expresses the feelings of satisfaction (n=3).
- She is disappointed with the incomplete realization of her differentiation plan and returns to it in various contexts (n=3)
- She pays a lot of attention to students as individuals, and for that reason she feels disappointed with the differentiation which did not succeed or succeeded partly (n=1),
- she also notices that her ability to anticipate situations is developing (n=5)

2. Task awareness (n=4):

- The writer thinks of the proper division of time between theory and practice, between applications and learning to use the equipment (n=4)

3. Process awareness(n=4):

- The writer reflects on the features mentioned above even together with the reflection of processes: first her unsuccessful anticipation of
 - *time needed for the work in general
 - *amounts of liquid and tubes needed for practising
 - *special time needed for pipeting, and
- unsuccessful differentiation.
- Due to the haste she has to change her original plan twice, in addition to speeding up the processes, which shows flexibility in interaction and also good knowledge of subject matter.(n=2)
- She thinks that her decision making has been good and situation-specific (n=1).
- She makes the decision (of the follow-up concerning a student whose differentiation failed) together with the tutor teacher (n=1).

4. Professional awareness

The writer mentions the need for professional development in her core plan, and has thus the knowledge of it, but does not reflect on the matter or even details of it in the connection of practice experiences.

Her reflection makes her think that it was the haste in general that prevented her from acting according to the plan. She is aided by the tutor teacher in making the decision of the follow-up activities of those needing to repeat the exercises.

She does not think that she was successful this time, but her reflection refers to the next situations and to the improvements that she has to make for the next time. She feels pleased with the experiences and she can understand why things did not happen according to the plan. She got honest and encouraging feed-back from her tutor teacher, supervisor and the students themselves.

Her reflection moves mainly in the pragmatic area of both education and the discipline. The teaching methods serve pragmatic solutions. They are not reflected more deeply.

CASE 2: The next student teacher has an academic degree in economics and marketing. She has already worked as a teacher for a couple of years, and is studying part-time in teacher education. She taught organizational quality work to the polytechnic level of students in the department of economics and marketing

Table 9. A teacher student who taught issues connected with business studies writes of her teaching experiences.

KNOWLEDGE pre-action planning	ACTION in-action descriptions Sample quotations	AWARENESS reflection-on- action, description
(Planning) <i>Knowledge</i> of collective planning <i>Knowledge</i> of interaction (warming-up) <i>Knowledge</i> of learner centred approaches (community- based method) <i>Knowledge</i> of group work methods <i>Knowledge</i> of	I ... described the unit of the things I was to teach to the students, and we started to investigate together through pictures what quality is. I gave two different pictures to each pair. Pictures should provoke words and images connected to quality. ... I wrote down all the words connected to quality on the board. We discussed the results. We managed to get the concept on the practical level, in my opinion. I went on applying the concept to practice. The small groups were given articles about the quality of tourism enterprises. I explained some concepts before reading the texts, and some new words appeared still in them. ... The students reported their articles, they did good work. Three hours went	<i>Thinking</i> of the total sequence of lessons <i>Thinking</i> of involving the students <i>Thinking</i> of a common effort for results <i>Thinking</i> of discussing the applications of theory <i>Feeling</i> pleased <i>Thinking</i> of a more theoretical approach <i>Reflecting</i> on the group and how to get started with the work <i>Feeling</i>

<p>interaction with young adults</p> <p><i>Knowledge of problem solving methods (pedagogical drama)</i></p> <p><i>Knowledge of the methods (analysing the presentations)</i></p> <p><i>Knowledge of emotions and creating good atmosphere</i></p> <p><i>Knowledge of the subject matter & material</i></p> <p><i>Knowledge of student centred methods (inquiry approach)</i></p> <p><i>Knowledge of methods (illustrations)</i></p> <p><i>Knowledge of values</i></p> <p><i>Knowledge of students and their interests: making decision</i></p> <p><i>Knowledge of values</i></p> <p><i>Knowledge of methods (group work)</i></p> <p><i>Knowledge of different learners</i></p> <p><i>Knowledge of methods (collecting the group findings)</i></p> <p><i>Knowledge of teaching material</i></p> <p><i>Knowledge of methods</i></p>	<p>fast, I had learnt to know the group and had a nice start. ...</p> <p>The second time began ... with a role play. Half a class formed a traditional organisation. I gave the students advice how to act. The task was successful ... The other half of the class formed a learning organisation. The students told about their feelings after the task. The atmosphere was relaxed. Drama is worth using if you find a theme suitable to the method. ...</p> <p>...The theme of the (third) day was leadership and ethics. I had prepared an activating hand-out which I gave to the students. In addition, I made hand-outs of the values of Finnair and copies of some other newspaper articles. Kyllikki (the teacher education supervisor) came to audit me on that day. I started the day with the values of the present school . early in the morning the values did not hit the point, so I moved to direct action.</p> <p>I handed the students the copies of Finnair values and articles on values in general. The students answered the questions and discussed in small groups. A boy worked alone and was doing the given tasks, and one girl was absent. We discussed the tasks together and shared the findings. A few answered spontaneously, some others were asked to tell of the things they had written down. An activating hand-out is worth-while if you want the student to find out information, to collect and organize it. The student will find it easy to answer,</p>	<p>satisfaction</p> <p><i>Showing E.I. (Emotional intelligence)</i></p> <p><i>Thinking of the process of pedagogical drama</i></p> <p><i>Self-assessment, feeling successful</i></p> <p><i>Thinking of student feelings, giving space to them, E.I.</i></p> <p><i>Reflecting on using the drama as a method</i></p> <p><i>Thinking of the subject matter</i></p> <p><i>Thinking of how to involve the students</i></p> <p><i>Thinking of enterprise values</i></p> <p><i>Thinking of her supervisor in the class</i></p> <p><i>Thinking of the theme</i></p> <p><i>Thinking of the student motivation E.I.</i></p> <p><i>Thinking of an alternative action on the theme</i></p> <p><i>Thinking of students' work, allowing variation E.I.</i></p> <p><i>Thinking of the differences in students' readiness to talk spontaneously E.I.</i></p> <p><i>Thinking of the suitability of teaching material to developing the</i></p>
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<p>(developing student thinking) <i>Knowledge of the demands of making material</i></p>	<p>when information has already been gathered. For the usage of activating hand-outs you will need sufficient material out of which the students can compile the chosen entities.</p>	<p>thinking ability of students <i>Thinking of the route to optional learning results</i></p>
<p><i>Knowledge of demands for continuing material development</i></p>	<p>I will surely use the activating hand-outs later as well, when I have now tried how to use them. You have to consider the tasks carefully beforehand so that the students will get challenges, and the work is not only copying the information.</p>	<p><i>Thinking of the lesson learnt from this experience, self-assessment and feeling satisfaction</i> <i>Thinking of students learning to think</i></p>
<p><i>Knowledge of methods (expert visits)</i></p>	<p>... Interesting discussions arose on strategies, missions and visions. I had asked Jussi (=the vice headmaster) to tell about the values of the school.</p>	<p><i>Thinking of the aims, goals and values, of strategies and missions of the school</i></p>
<p><i>Knowledge of aims, goals and values</i></p>	<p>This is how we got good information from an expert. It completed the theme we had started in the morning. I finished the lesson by a transparency "everybody is needed".</p>	<p><i>Thinking of the student feelings E.I.</i></p>
<p><i>Knowledge of interaction and teacher attitudes</i></p>	<p>Some material was left over for students' autonomous work.</p>	<p><i>Thinking of students' self-directed work</i></p>
<p><i>Knowledge of methods (self-directed work)</i></p>	<p>I consider it important that I can tell the students practical examples of tourism which is my own specialty area. The things that appear in the material can be studied autonomously.</p>	<p><i>Thinking of the power of illustration</i></p>
<p><i>Knowledge of methods (illustration)</i></p>	<p>After the lessons I had positive feelings. I had sensed enthusiasm.</p>	<p><i>Thinking of students' positive response E.I.</i></p>
<p><i>Knowledge of methods (adaptation)</i></p>	<p>... ... The work of another group succeeded, although the work was divided into two days, and talking about the findings took place on the third.</p>	<p><i>Feeling satisfaction</i> <i>Thinking of the alternative way of using material,</i></p>
<p><i>Knowledge of planning sequences</i></p>	<p>If the lessons are on different days, you have to make sure that the whole plan of teaching can be realized.</p>	<p><i>Thinking of the conditions of successful change</i></p>
<p><i>Knowledge of student-centred teaching methods</i></p>	<p>... In my teaching practice I completed relatively carefully the units that I had planned. I used those teaching methods that I had planned to use. I gave the theory a minor part in my realization of the plan, and added practical cases and concrete tasks.</p>	<p><i>Feeling of satisfaction</i> <i>Reflecting on the issues that made the experience positive</i></p>
<p><i>Knowledge of theory (contents)</i></p>	<p></p>	<p><i>(discipline, tasks, process)</i></p>
<p><i>Knowledge of methods (illustration)</i></p>	<p></p>	<p></p>

<p><i>Knowledge of learner autonomy</i> <i>Knowledge of interaction (motivation)</i></p> <p><i>Knowledge of methods (with groups with wide age-range)</i> <i>Knowledge of building balanced entities</i></p> <p><i>Knowledge of lifelong-learning</i> <i>Knowledge of deepening contents and teaching as a process</i> <i>Knowledge of planning (teaching material & methods)</i> <i>Knowledge of students & groups</i> <i>Knowledge of creativity</i> <i>Knowledge of lesson design development</i> <i>Knowledge of aims and goals in the light of epistemology and learning conceptions</i></p>	<p>I made students do themselves. They were more motivated than I had dared to expect. I talked to only a few students in order to add motivation, and encouraged them to work. Most of them were very self-directed. The group included also older students than I had been able to expect. Their life experiences and enthusiasm gave me extra energy during the lessons. I was able to give varied and many-sided teaching events. In my opinion, I could connect the units to each other.</p> <p>...</p> <p>... There is always reason to further development. When you have realized one unit of things, you know in the next time how the teaching succeeded previously and how you could do it still better.</p> <p>The material will be refined, working methods become more assured, and you can give space for trying something new. One thing works well with one group, and you have to be alert enough to try something new with another. I do not want to stop, neither do I want to digest the things too complete for the students. The contents should not taste paper too much, but you have to leave time for creativity and developing new things. Sometimes there are situations that you have too many uncompleted things, and then the understanding of the whole may suffer. Clarity and logic are things that I will surely have to try and increase. AR</p>	<p><i>Reflecting on the student motivation and encouragement</i></p> <p><i>Reflecting on the influence of older students on the group</i> <i>Recognizing one's positive feelings</i> <i>Self-assessment of the whole lesson sequence</i> <i>Feeling of satisfaction</i> <i>Thinking of further learning</i> <i>Reflecting experiences</i> <i>Thinking of the issues to be developed on</i> <i>Reflecting on her creative capability and different learners</i> <i>Feeling the desire to develop herself and help students find out things themselves</i> <i>Reflecting on learner autonomy and creativity</i> <i>Self-assessment and reflecting on the qualities to be striven for</i></p>
LEVELS II, III	LEVELS II, III	LEVELS II, III

The person quoted above is concerned with the methodological competencies and the practical applications of the methods learnt in theory. She is able to plan and use them in practice. She has also a great concern of being able to arrange the learning situations that support good interaction. The choice of methods

reveals constructivist or socio-constructivist approach spiced with humanistic thinking. Out of 45 statements concerning the knowledge of teaching or referring to pre-action issues the following categories were found:

1) Knowledge of human relations (n=9):

- teacher-student interaction (n=6),
- students' emotional aspects in interaction (n=2).
- Besides being included in the descriptions of methods, learner autonomy is mentioned once in connection of motivation. It is considered an approach, not a method, although it appears in connection of methods.

2) Knowledge of discipline (n=2):

- the theoretical contents of the subject matter appeared in 2 statements, but was mentioned in connection of theory-practice arrangements several times.

3) Knowledge of the implementation of teaching (n=29):

- teaching methods (n=18),
- teaching material or preparing it (n=5).
- Planning (n=3), and
- aims, goals and values (in 3 statements).

4) Knowledge of professional development (n=5):

- Creativity included in teaching methods, but separately it is mentioned in 2 statements.
- Building an entity favourable for the learning process (n=2), and
- life-long learning (n=1).

The awareness of action and reflection-on-action inspired the writer to think of the learning and teaching processes and evaluate the interactive situations. She pays great attention to emotionally intelligent acting. She is also concerned of her future professional development and reflects on the conditions for it. The following categories included 53 reflective statements and 7 statements referring to the use of E.I. (emotional intelligence) altogether.

1) Personal awareness

(10 statements, 7 emotional intelligence references)

- recognition of one's emotions: feeling pleased or satisfied after a successful action (n=8)
- feeling positive as a reaction to student enthusiasm (n=1)
- feeling desire to show her best in a situation (n=1)
- emotional intelligence appeared in interactive situations when the writer changed the program according to student reactions, gave space to student feelings or to students individual ways of interaction modes and showed appreciation to different learners. Also special care in material design to help student autonomy exceeds the level of normal work preparation.

2) Task awareness (n=8)

- appears in the reflection of values (n=2). Besides being included in the learning tasks, they are reflected in general and in the connection of aims, goals, strategies and missions of the school in particular.
- More often task awareness appears in the reflection of processes. Tasks and discipline are reflected as starting points and as contents of action (n=4), or
- they are reflected as to the proper relationship of theory and practice. Theory/ discipline got a minor part, the applications prevailed (n=2).

3) Process awareness (n=27)

plays a major role in the reflective thinking of the writer. She has planned the sequence of lessons according to learner-centred principles. Hence, she starts the unit, even separate parts of it with

- common planning and introduction (n=2). She reflects on her use of
- warming-up discussions (n=2) with or without a mind-map on the board as an introduction,
- pair work, group work, collaborative methods and problem solving methods. as well as pedagogical drama (n=6), and
- autonomous work at school and at home (n=3).
- Teaching material and illustrations/ cases are given plenty of thoughts (n=4), as well as
- student attainments (n=4).
- The writer changed her lesson plan twice because of student reactions. She was well prepared personally and materially for reading the attitudes (n=2) and motivation (n=2) of the students, and succeeded according to her self-assessment.
- She reflected on the whole unit that she taught and felt satisfied before and at the end of the period (n=2).

4) Professional awareness (n=9)

reflections show that the writer has turned her eyes to the future development as a teacher. She sets explicated goals for her personal development.

- She wants to improve her thinking and design of teaching to be logical and clear.
- Reflecting on her experiences in the teaching practice she finds reason to learn from it and pay attention to her teaching and make it even more flexible and interactive
- Flexibility and interaction are important in helping students to find out things themselves, develop their autonomy and thinking skills. This shows a desire to act according to constructivist learning conception which the writer seems to have adopted as well as the present day epistemological conception.
- She also finds reason for developing the teaching materials and her personal ability to vary teaching material to fit the groups.
- She wants to become more assured in the methods she has tried, and also develop her creativity to be able to find new things in teaching. She does not want to be regarded as a dull teacher. She understands that creativity needs space and time and she hopes for having it
“There is always reason for further development. ... you have to be alert enough to try something new ... I do not want to stop ... you have to leave

time for creativity and developing new things”, are excerpts from the writer’s text.

The writer of the second text shows advanced awareness of the competencies that are essential in teacher’s work and balanced self-assessment. Her self-concept as a teacher is realistic, she pays a lot of attention to good interaction with the students and she understands the significance of emotional triggers as well. It is not too difficult for her to design the lessons, since she is a specialist in the field of discipline. She has also earlier tried the methods she uses in the teaching practice. As a wife and mother she has learnt how to work with young people.

A profile of many second or third career vocational student teachers would be like that. All of them do not, however, show similar awareness of various aspects in teaching work. Especially professional awareness reveals a conscious reflector who will hopefully find herself as a life-long learner in the future.

4.5.6 Summary: Development Towards Conscious Teachership and Professionalism

Insight into student teachers’ interactive cognitions and way of thinking in pedagogical interaction, as well as before and after it, is valuable and of great additional importance, because it provides information that would otherwise not emerge. It is partly reflections on what was taught and written during earlier phases of teacher education, but on the other hand it is something that they have created themselves based on the theoretical knowledge of education, on their biography and on the experiences of school and teaching. In the following passages few lines will be devoted to creativity which has not been given ample space earlier in dealing with the student teachers’ reports. After it a summative review of development towards teachership is represented.

Creativity often occurs in the texts when student teachers look into the future. In the present teaching practice period they used their skills of invention and innovation to find ways through to student learning, to orchestrate conflictual elements in acting in the teacher’s role, to resolve satisfactorily the many dilemmas thrown up in the classroom from moment to moment, to improvise and employ the moments of the day to optimize learning and, not least, to cope with constraints.

Creative teaching is defined as having four main properties: innovation, ownership, control and relevance. As a matter of fact, they are the criteria known from the theories of autonomous learning (Nissilä 1993, 2002.) Innovation takes place, when something new is created. In the present context, the changes have taken place in student teachers, starting during teacher education or earlier. They have learnt to master new skills, gained new insights, realized new understanding, acquired new significant knowledge or found new ways round a

problem. No one has perhaps gained all of them, but all of them have got an insight of one or some of them.

The ownership of knowledge means learning for oneself. For that reason the personal awareness and gains should always be reflected on. Creative learning means internalizing knowledge and transformation. Knowledge can be understood as the working practices of a domain or discipline, and learning as enculturation into these practices. It means that the student teachers were just amidst knowledge creation during their practice in vocational settings.

The control of the learning processes should be at the owner's. It means that creative learning and teaching does not need outer control, but the owner's self-control and the control through collegial reflection should be enough. This is something that the student teachers referred to when writing about learner autonomy and self-directed learners. Teachers as well should be self-motivated and autonomous, for without autonomous teachers there won't be autonomous learners. Teachers must, however, remember that teaching is subordinated to learning. Thus teacher autonomy does not mean arbitrariness but the right to creative situational solutions, if needed. This seemed to be the goal of student teachers' striving, although to reach the level of autonomy needs more practice.

Relevance in general means that teachers strive to construct knowledge that is meaningful within the learner's frame of reference. Student teachers in this study tried to create strategies of sharing and creating knowledge, stimulating the students' prior knowledge, evoking their imagination and positive emotions and developing common knowledge. If knowledge conveyed to the students is relevant to their concerns and reflects their societal and cultural knowledge, it is easily internalized and developed into personal knowledge. The student teachers found this kind of task meaningful in vocational education settings, since students can easily see the relevance of knowledge for their future works. The relevance of knowledge is emphasized by the teachers'/ student teachers' working life experience. They should have the latest knowledge and practices in their fields. This is what the student teachers were conscious of.

Considering the criteria listed above, it seems that the higher the relevance of teaching to the students' life world, the more likely the students will have control of their own learning. That fact seemed to be understood by all student teachers. Relevance aids involvement, motivation and enthusiasm. Self-control leads to ownership and results in better learning. If relevance, control and ownership meet positively, there is innovation, something new is created, there happens a change or transformation in the person.

If the whole process of teacher education is examined from the perspective of development towards transformative teachership, the aspects dealt with earlier in this research will form an interesting picture and show how the teacher's work is complex and connected to many groups of interest holders. The main

connections are the dialogue with students, colleagues and working communities. The dialogue takes place in the context of learning environment and culture. All participants of the dialogue bring their personalities and identities as well as their cognitive and metacognitive capacities, emotions and social competences along. They are also expected to reflect on their experiences. These elements are constantly shaping and reshaping in through communication in interaction when they influence each other or are influenced from outside as is seen from the next figure.

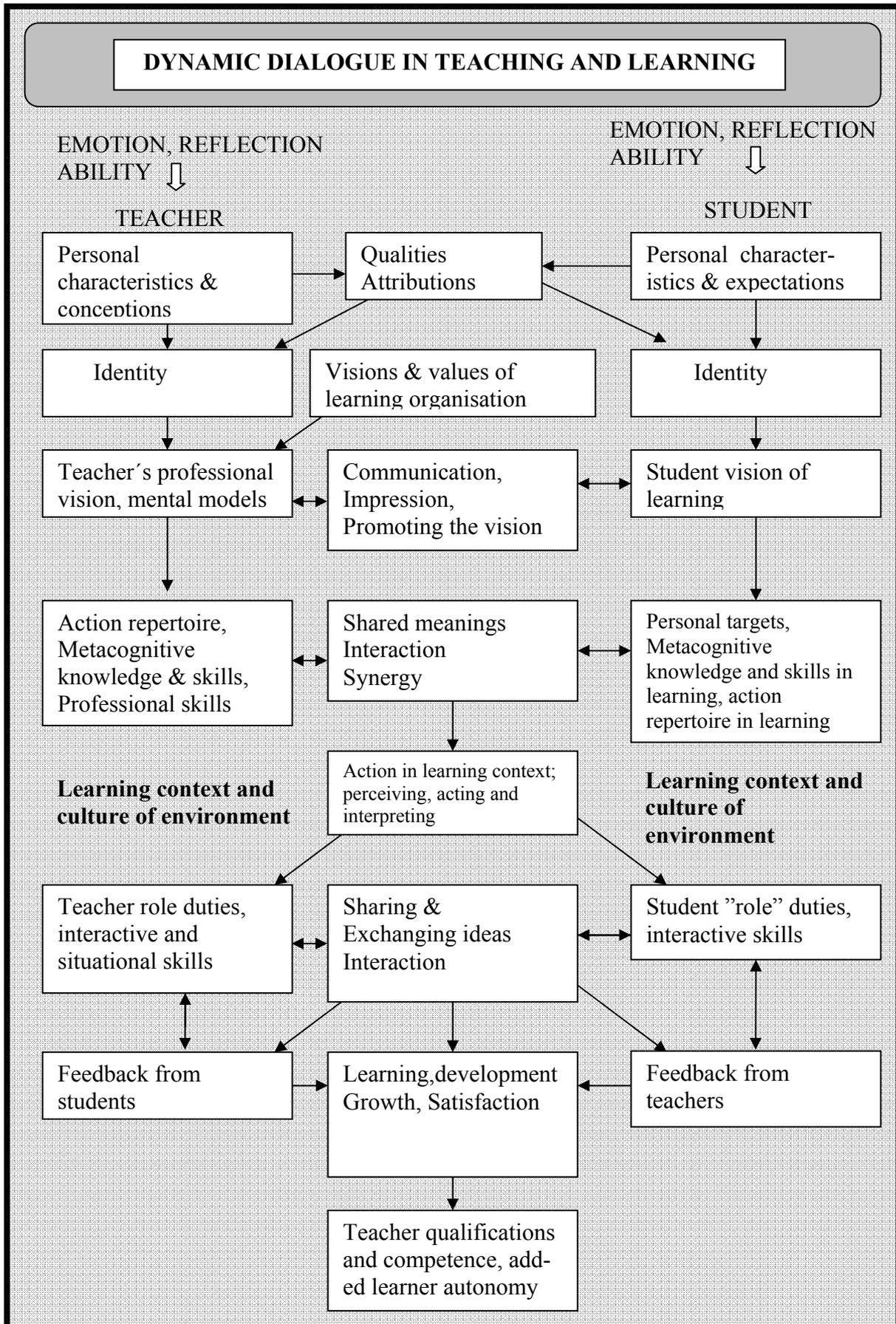


Figure 21. The growth of teacher and learner in interaction.

The final question remains: How can the concept of teachership be defined? The answer would be, according to this study: it is an **implicit, explicit and dynamic as well as social, personal and situational process by the regulation of which the teacher can influence on the learner's cognitive, affective and conative processes and learning outcomes**. The following figure illustrates the definition:

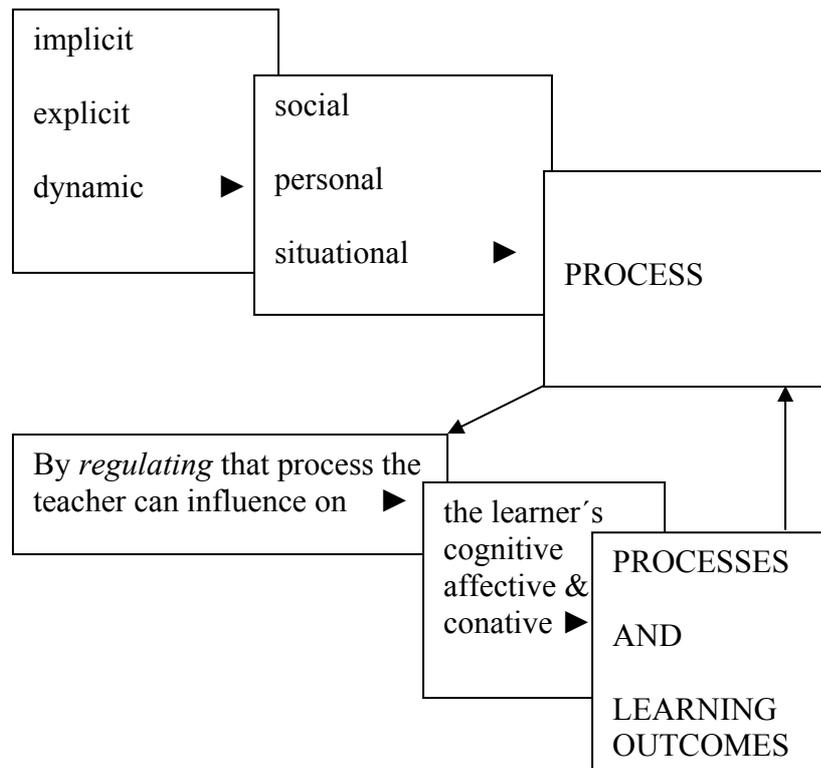


Figure 22. The emerging model of vocational teachership as a dynamic, interactive process.

5 Implications and Discussion

The development of knowledge and new conceptions – of learning, of human beings and of epistemology – as well as the change of traditional concepts of work and school in society have contributed to the changes on teaching and the professional self-concepts of vocational teachers. Professional roles of vocational teachers, vocational students and working life representatives have a continuing dialogue with each other in the educational contexts as well as in the border lines between work and education. The dialogue takes place also between the university and polytechnic representatives. *To cope with the challenges, the vocational teachers need professional education which is able to answer the new demands and is transformative, has influence on their thinking, values and actions as future teachers.* They will need positive attitudes towards self-development and life-long-learning, they will need metacognitive skills to guide their learning. Technical skills of content knowledge and methodology as well as planning and evaluation skills are, admittedly, important, but their increase alone does not mean teaching better. Teachers need invigoration of spirit, a deep understanding of the interaction processes in learning situations, and knowledge of the factors underlying such situations as well as self-knowledge to support transformative teachership.

5.1 Answers to Research Questions

In the following the research questions are repeated first and then the answers will be given to them according to the material studied.

- 1) The described experiences of vocational teacher education.

How to design and implement vocational teacher education programs to fulfill the expectations will depend on what teachers need to know in the modern age and how they are supposed to learn it. Conceptions of teacher learning and transformation are varying and need new viewpoints based on research. My research revealed the experiences of the student teachers within one program design. It investigated first *how prior experiences and pre-existing beliefs influenced the way the student teachers thought, interpreted and comprehended the teaching tasks and being teachers.* Processing critical learning experiences from the past is important, since when reflected upon, they will open the way to

new conceptions: old unconscious habits and emotional obstacles are uncovered and interpreted and the past is in this way created new.

The expressed conceptions of learning and personal learning styles were observed and discussed. Ontological and epistemological conceptions as well as conceptions of learning and human beings were reflected individually and collectively in theory and in practical solutions throughout teacher education. In all cases the acquaintance with them led to a more or less profound change in conceptualization and thinking habits and, consequently, in the ways of constructing teaching. Constructivist and humanistic approaches attracted the student teachers most, although they saw the benefits of behaviouristic approaches in certain learning situations in vocational education. Situational learning as well as on-the-job learning were reflected and valued highly.

Observing learners was regarded as important, since many student teachers had not had any connections to school after their own school years. They were offered plenty of new aspects to teaching and understanding the situation of learners. The student teachers without previous teaching experience were not as well equipped to notice situational factors as their colleagues with some teaching experience. The so called situational sensitivity, which all of them considered of utmost importance, needs time and experiences as well as reflecting on them in order to develop.

Socialization into teachership was thought to start during the familiarization with the school organisation, context, values and communities. Although the student teachers were not the first time socializers, they felt the experience very useful. Still their observations show that in the core purposes, viz. aiming at incorporating socialization into their professional development as teachers, they would have needed a still better chance, more time and scope to meet their needs. They were supposed to have further gain from reflective seminar discussions when comparing each other's experiences. It is evident, though, that novice teachers will not be socialized into teaching communities until from the beginning of their prospective careers as teachers.

The results showed that, in addition to the elements presented above, the student teachers felt it necessary that the program should include elements which aim at increasing personal awareness. They should be encouraged to reflect on their self images to gain in self-understanding. It is important because of the increasing emotional stress in teaching career nowadays. Although *building communities of dialogue and thus interpersonal relationships are essential*, the time and opportunity to engage in *self-reflection and building one's own self-image is felt equally necessary*, for they strengthen the motivational and emotional factors that affect all learning and help construe new knowledge. Autonomous, collaborative and inquiry-oriented approaches should, consequently, be also enhanced to make them intrinsic parts of student teachers' behaviour.

Contextual and interactive learning in practical real life situations, like during teaching practice, will bring multiple forms of knowledge to intersect each other. The practice period is experienced to be the most important, since it allows opportunities to exercise their expertise, pedagogy and ideas of teaching in real settings of education. The experiences revealed satisfaction with their performances in general. In spite of normal set backs, and the fact that their action repertoire was not as well developed as their thinking, student teachers looked into the future with trust.

- 2) How were issues of personal, task, process and professional awareness experienced in the student teachers' written self-assessments?

What characterizes professional learning in general is that *the span of learning from a novice to an expert takes years' time* (Eteläpelto 1997). Hence, it should become a part of expectation for the teacher's role and an integral part of the culture of school, not limited only to teacher education. Being involved as a learner and a participant provides openings to a new knowledge, broadening the agenda for thought and action. In important ways such activities link professional learning that is personal on one hand and collegial and collective on the other. It covers the awareness domains of person, task, process and profession.

The present study concentrated on second or third career teacher students and their processes of becoming teachers. Studies suggested that pre-existing beliefs about teaching, especially for those entering teaching later in life, were linked as much with the prior work and personal experiences as with the prior schooling or teacher experience (cf. also Calderhead & Robson 1991, Clandinin 1986). Together with the earlier professional identity the discipline had a relatively great impact on the novice teacher's practical choices as well as on the socialization processes in the beginning. Later on it was seen to give way to pedagogical reflection and pedagogically oriented ways to approach both tasks and processes in teaching.

Many second or third career pre-service teachers had extensive work histories, families with children at varying ages and advanced knowledge of their content area. Consequently, they seemed to foster high levels of optimism about themselves as teachers in the beginning. How these beliefs are translated into instruction in general, is less clear. *Self-efficacy and sound self-esteem* helped the student teachers, in any case, to meet obstacles in teaching practice and see their performances in the right way proportioned. They did not feel too depressed after failures, and could appreciate the moments of success. A few of them felt even empowered, which is the result of successful collaboration of joint social and individual efforts.

One purpose connected with all domains of teacher awareness which is regarded as a significant factor in successful teaching is the so called *situational*

sensitivity. It presupposes intrapersonal as well as interpersonal skills, task and process awareness. It appears, for instance, as a desire to understand all learners, even to appreciate different learners. The great care with which the student teachers prepared themselves for differentiating teaching is a sign of not only understanding the changes in their prospective audiences and the desire to meet the future needs but of the *professional attitude* to challenges. Collaboration, collegiality and networking as well as reflection were also understood as essential.

Still another issue of task, process and professional awareness arises with the increase of ICT in the vocational field as well as in teacher education. It is not only a question of learning new techniques and mastering new equipment, but it has come to stay in the form of various distance learning and multiple learning arrangements. Thus it has an impact on every teacher's role. The importance of teacher involvement in the changes from traditional to new learning environments, even other than mentioned above, should not be objected to. *Teacher education should be guided by the intentions of innovative projects and experiments.*

3) What is pedagogical thinking like according student teachers' reports?

According to Marton et al. (1993) the two highest levels out of six higher-order thinking skills – also in a way comparable to that of pedagogical thinking – are (5)“learning as seeing things in a different way – an interpretive process aimed at understanding reality” and (6)“learning as changing a person”. A few students explicated that teacher education had really changed their lives and future prospects completely – in a better direction. Most student teachers stated that their conceptions of learning and teaching had changed greatly. The change concerned also their personal dispositions. *Their self-knowledge had increased and it brought along other changes, e.g. the changed perspectives of teaching and learning in general and understanding themselves and other people in particular.* Also the conceptions of learning communities, learning conceptions, epistemic conception and the position of disciplinary knowledge and the importance of practical applications in learning designs had undergone a change, not to talk about several methodical approaches to learning and evaluation. They were also seen in the perspective of aims, goals and values.

Although this kind of result in higher-order thinking is astonishing, it must be remembered that the student teachers concerned have academic degrees and thinking skills before coming to vocational teacher education. During the teacher education the existing thinking skills have to be revived and turned to educational and pedagogical area.

As to pedagogical thinking skills the results are somewhat different. If evaluated with the four-level tool presented in Table 7, the student teachers are on levels one to three. Many novices are on the first and second levels, on descriptive and pragmatic levels which are the most common among teachers in

general. To reach level three, the level of theory and practice needs reflecting on the experiences, acquaintance with educational theories, not only with those of their own expertise area, and mirroring the experiences against the theories. This arouses a desire to develop the professional competence. As is understandable, newcomers to the career without experience of teaching find it difficult to mirror their lacking experiences against the theoretical background knowledge. The skill of doing this will increase at work in the course of time, if the person concerned is invigorated with life-long learning approach.

The highest level, that of metatheories presupposes deep understanding and knowledge of the wide contexts of society, politics, philosophies and education and their interrelationships. The perspective of understanding education is not only nationwide but comprises humanity and the human responsibility for mankind. The person on the level of metatheory strives for broader purposes at work and is therefore networking for common good. She often feels empowered, since she gets strength from personal life-long learning experiences as well as from the support of communities. No one of the student teacher reached this level.

To sum up: according to the student teachers' writings *higher-order thinking skills were much better developed than pedagogical thinking skills which need practical experiences to be developed*, since that kind of thinking is both abstract and concrete. As to the abstract quality of pedagogical thinking, it was much more elaborated among the target group than what was its manifestation in practice. It appeared to be true that if you want to know a teacher's pedagogical thinking, you should observe her teaching.

5.2 Implications and Recommendations

Implications appear as answers to research questions 4 and 5, and they will be dealt with in the following paragraph.

- 4) What kind of practical implications can be drawn from the research results concerning vocational teacher education?
- 5) What kind of recommendations could be given?

(1) *Vocational teacher education programs* should be designed so that prospective teachers could become aware of the nature and forces of teachers' working conditions in the vocational area. They should understand the institutional, cultural and psychological contexts, the educational, pedagogical, didactic and disciplinary approaches as well as be provided with tools to learn to understand themselves and the students in vocational education. Interaction in

the school settings must be paid attention to. Student teachers should be also provided with high level teaching practice supervision and tutoring.

(2) As *communities of interaction* and relationships, vocational education units should provide opportunities for establishing collegial relationships with co-students and with mentors and tutors. Tutors are of utmost importance to vocational student teachers. For that reason they should be arranged in *in-service education on tutoring* regularly.

(3) Vocational teacher education should be built on the *principles of andragogy*, include opportunities for group work and networking with co-student teachers. To gain extra benefit from interaction, multi-disciplinary groups should be favoured. Real meeting of people should not be neglected. Modern learning environments allowed by ICT should be favoured as complementary to meeting each other face to face.

(4) Vocational teacher education should be conceptualized as *a continuum* that is consistent across preservice, induction and in-service programs. The rethinking of preservice and in-service programs could offer a proper division of contents so that they would complement each other to a greater extent. The often suggested idea of arranging vocational teacher education according to apprenticeship principles should be seen rather as a continuum of *preservice education, continued from time to time in working together with a mentor teacher*.

(5) In vocational education, as well as in vocational teacher education the aim is to develop *inquiry orientation, collaborative habits, active learning and self-directed approaches*. Student-centred attitudes in teacher education predispose student-centred approaches of the prospective teachers. For that reason transformative approach is necessary in teacher education, as well as professionalizing student teachers into human contexts of schools while still keeping them free to exercise their creative abilities and critical thinking power. Constructivism enhances inquiry orientation and developmental attitude, encapsulates reflective practice and enhances teachers to become “researchers and developers of their own work”.

(6) In school education in general, the commitment of teachers to their teaching work has become somewhat weaker during the last few years. Without trying to speculate the reasons for that, the future perspective needs a few words. Vocational teacher students who graduated from the present teacher education institute have up to these days been faithful to their calling, chosen and stayed in teaching career after graduation. Some research reports have been written of the effectiveness of the present education. The results show that most of the vocational teacher students who graduated in years 1999-2004 received work as teachers. A remarkable amount of them has continued their studies along side their jobs, most often in university further education courses. *The best means to fight against teacher burn-out seems to be innovative attitude and willingness to lifelong learning*. To ensure able student teachers in the future, the *enrolment methods* should be chosen with good judgement and deliberation.

(7) *Working life contacts* should be paid increasing attention to in educational programs. The relationships between jobs and education have become closer during the last few years as the result of changed routines and habits in schools. They, in turn, result from changes in society. Networking between vocational teachers, work places and vocational teacher education representatives pave way for useful habits of prospective vocational teachers when they enter teaching jobs.

(8) Due to the changes in working life contacts, the changes in vocational education in general have influenced the way in which vocational teachers think of and conceive their work *as mediators between school and working life*. Vocational teacher educators have to take this into account in designing the contents of the education programs. They have also to realize that their role has changed from a traditional teacher into educational expert, negotiator, supervisor, mentor and organiser.

(9) The change in society and vocational teaching has been taking place for some time. There is no agreement of the fact whether the change is fast or slow (cf Saari 2002 and Salo 2004). Instead, the change itself is reality. The teacher educators as well as student teachers should be prepared to a) *re-skilling and re-training themselves* regularly, b) *developing themselves* personally, including the areas of emotions and creative abilities, to be well equipped for changes, and c) *developing networks* and collaboration as well as collective reflection with colleagues.

(10) Last but not least, the teacher educators should cherish good, optimistic, development oriented and innovative atmosphere. An important insight is that a teacher educator has to be *a good model of practice*. Educators at both the personal and collective level need to practice what they believe in and live up the principles they uphold on a day-to-day basis.

5.3 Discussion

The study aimed at describing and understanding the variation of experiences and development of the pedagogical consciousness, thinking and actions of the 2nd and 3rd career vocational student teachers during their teacher education in a Finnish vocational teacher education context. The aim was also to identify the crucial factors and processes related to the action and conceptual change. It was intertwined with respective theoretical, methodological and practical issues.

The study presents an interpretive approach. With respect to recent theoretical findings on learning, the results can be seen to resemble the idea of situated activity: pedagogical, professional knowledge was constructed through an active interaction with the context involving both individual, social and cultural processes and variance with time. The subjects mentioned repeatedly the

importance of active learning for their development, and for learning in general, emphasized by constructivism.

Knowledge integration was enhanced by individual and collective reflection. Restructuring the subjects' cognitive domains presupposed the earlier beliefs and conceptions to be revealed as well as self images to be reflected upon. The student teachers were not seen as isolated from their biography and social settings. Collegial approach was emphasized: traditional accumulating of knowledge was replaced or enriched by reflective, understanding and interpersonal approaches embedded in the program. Learning was seen to be in connection with cultural backgrounds, situations and working life experiences. Active contacts with working life networks were considered significant.

It seemed that the identity and the self of the student teachers was at stake. It led to emotional colouring of the experiences. It also made the subjects understand how important the emotional awareness of oneself and of the others is for professional development as well as the necessity of interpersonal skills and situational sensitivity.

Phenomenographic approach directed the research towards the analysis of student teachers' reflected experiences chosen for the study. It aided to make the multiple voices of the student teachers audible. In dealing with the research data efforts were taken to find out the variance of expressed experiences during the time of teacher education vertically, and also to find out how the student teachers interpret and conceptualize their experiences in the form of perspectives and structures horizontally, and connect them to the practical domains. Through this kind of study, narrative writing, reflection and shared experiences, it is possible to understand the conceptual cognitive, affective, personal and professional processes and the transformation of student teachers, which were aimed at. The increased consciousness of the bases leading to different educational solutions also led to changes in the subjects' conceptions. In trying to capture these changes, a loose and heuristically applied phenomenographic approach was developed during the study. It appeared to be a good methodological choice, since the analysis progressed as if in the framework of a detective story: the proofreading had not revealed the many variations and clues which appeared in a detailed and careful analysis in the course of study. The present study shows that well developed conceptions do not tell about the real action or they are not necessarily manifested in action immediately. Conceptual changes should, however, be identified, since they imply the possibility of change in teacher cultures, embodied in the work-related beliefs of teachers.

The key concepts regarding the teacher change that this study brings forth are empathy, interaction, collaboration, gradually emerging expertise, situational sensitivity, only to mention a few of them. They cannot be fully understood without paying attention to the contexts where the processes take place.

The categories which vocational teacher students seem to construct are often knowledge and discipline. They are systems which regulate teachers and tell something of their relation to the world. When teachers are talked about as reflective practitioners or teachers as researchers of their own work or as

collaborators in their communities, it refers to the professional high culture of teachers. This research is in accordance with wider research knowledge that the change of semantics is not in itself a precursor of change but needs gradual implementation and development.

Each of the five phases of teacher development dealt with in this study are partly independent units and partly connected to each other. As independent units they are somewhat heavy reading because of the repetition of the same topics in each unit. As interconnected units they reveal, because of the repetition of the central themes, the change and variance with time. The longitudinal aspect highlighted the developmental processes which were also identified by the subjects as changes in their conceptions.

The influence of an individual and the context is somewhat difficult, for they are both intertwined and affect each other. It means that the experiences varied according to the contexts, thus leading to interpretations which included the interaction of both cognition and culture. In the course of development the interpretations changed along with increased manifold experiences. This change is reported shortly in table 5.

The findings give some information of the processes of change among adult career changers. Another study would be needed to explain what direction the development of persons concerned here will take, if the new perspectives will be cherished, and what kind of further education the present subjects would wish after teacher education and work experience as teachers. The wide material could also be availed of by concentrating on the development of a few student teachers during the time of teacher education and compile a longitudinal study to draw profiles of chosen vocational student teachers. This study would provide a collective background for it.

Thinking and acting simultaneously as a researcher and teacher of the subjects has benefited the research through collaboration and sharing perspectives. A subjectivity postulate presupposes that the subjectivity of others must be respected, whether congruent or not. Further, the subjects were not told beforehand that they were informants of a research; they were asked for a permission to use their essays as material after the data gathering afterwards. Consciousness of a special status as a research target did not thus influence their expressed experiences. Intersubjectivity and the closeness of the researcher to the issues and individuals is regarded here rather as a benefit than a hindrance. The results are in harmony with theory concerning teacher learning and development in general, which also validates the findings.

If this research were repeated with another gathering of data, the amount of material would be kept smaller. Here the huge material served the purpose of eliciting the main targets of interest among the diversified, multi-subject group. Once that trouble has been taken, it is recommendable next time to move more straightforwardly to accurate and dense analyses of the reports of smaller groups of informants and more focussed study. If utilizing the present material, each of the central paragraphs (phases 1-5) could be continued as independent studies. Perhaps the most topical issue would be the dealing with teachers' emotional

stress, its prevention and learning to survive amidst emotionally pressing situations.

The findings give reason to emphasize the role of competent vocational teacher educators for teacher learning. They are multipliers of expertise whose work may have the time span from today even to year 2040, which is supposed to be the career time of some of the vocational teachers of this study. Secondly, resources should be directed to vocational learning of the young and adults, including apprenticeship education. Individualism and collaboration of teachers and learners should have reciprocal relationship and their roles should be studied.

As to the generalization of the findings, the issue to be referred to is the ecological validity. To gain it, this study stressed the importance of interpreting the information in the light of other information on context, experience and behaviour of the individuals involved. The emphasis on context is also reflected in theoretical discussion on the nature of cognition, learning and awareness. In general, phenomenographic research does not claim wide generalizability, but it aspires for highlighting and understanding the variation of the chosen group of subjects.

This study can be criticized for not addressing student teachers in the context of authentic learning situations or oral interviews. Instead, their experiences went through cognition and reflection before they were written down, and afterwards the researcher interpreted them again via cognition. This gave material which was in the logical form of written sentences. On the other hand, since the student teachers reflected on their experiences, they found more details and interrelationships, gave meanings to them and thus developed a more mature picture of the events. This process of verbalizing the experiences is regarded as an important phase of increasing awareness, not an obstacle.

The selection of students was not very strict. One of the criteria of choice was that they should represent different kinds of educational and teaching experience backgrounds, different ages, both sexes and that they had their essays throughout the teacher education time available. Through this kind of selection the effort was taken to capture and display the variation arising from different kinds of educational and working life contexts in multi-subject education.

From the perspective of trendy approaches in organization research, this study can be criticized for the lack of not collecting material on the experiences of school organizations, but instead of concentrating on the development of student teachers only. This does not mean, however, that contextual factors and the view of educational organizers should not be regarded important. In order to strive for a holistic picture of the process, another study should be made of the perspective of situational and contextual factors seen from the organizational perspective. The present study was, however, aimed at and limited to the experiences and interpretations concerning the professional learning of the subjects.

The author of this study supposes that individuals tend to transfer the learning outcomes of their prior learning experiences and their consequences to the contexts of further learning. There are views doubting the possibility of

automatic transfer of high-level structures or abstract principles. Other studies have shown that concept learning is especially difficult if subjects have to change their basic assumptions of a target domain. Consequently, learning seems to demand not only the enrichment of the subject's prior knowledge but also the reorganization of the whole knowledge structures. Even the students of higher education seem to be persistent and keep to their misconceptions they have once adopted. For that reason it is utterly important to make student teachers conscious of their prior conceptions, critically analyse them and to make them able to build new structures, discard irrelevant conceptions and also avail of the prior favourable experiences

The findings imply the existence of developmental entities as well as continuities in the learning and progression in cognitive domains and thus in the learning and acquisition of teacher competencies. The acquisition of knowledge can be seen initially situated, but recognizing the existence of some general cognitive skills as well as the possibilities and importance of transfer, and for instance, abstraction as a method of generalizing from a subject's prior knowledge.

As to the nature of 2nd and 3rd career student teachers' professional development, their perceived learning and developmental challenges appeared to be connected with their working self images. With regard to the validity of the perceived challenges for the actual teaching practice situation, it could be stated that if the level of professional awareness is analysed as a developmental process rather than as a static structure, subjectively represented challenges seem to function as valid indicators of subjects' professional awareness. This applies particularly to such tasks as planning, designing and management, which include demands for continuous growth and development. Opposite to general findings of teachers' low ability to plan lessons and sequences of learning as well as to their varying willingness to prepare study material, the subjects of this research regarded those tasks important and challenging and also wanted to see them in the light of values and aims. The notion of the contextual and situative nature of learning suggests that "what is learned" is defined by "where it is learned" and "how it is learned". These definitions emerged as valid in vocational teacher education and will show the direction to the high quality of learning.

Last but not least is the necessity to bring forth the need for creativity which can manifest itself in different ways in different individuals and situations. A creative person is able to develop oneself continuously. Professor Pekka Himanen (2006) claimed that without paying attention to creativity, "Finland is building an old people's home which the Chinese and Indians will come to see and get acquainted with". Creativity is more than planning and designing, it includes manual skills and all areas of talents which people can develop by using imagination, reasoning, problem solving skills and the skills of realizing their solutions in material or immaterial products. To attain creativity people need communities of trust, innovation, networking and passion. Passion to do something is the outset of creativity and the reward is inner satisfaction followed possibly by outer benefit.

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Appendices

APPENDIX 1

The subjects of research, their exams, years of birth and enrolment into teacher studies

INITIALS	SEX	EXAM	START OF	YEAR OF BIRTH
JA	f	M Ed Sci	2000	1968
AA	f	M of Engineering	2002	1950
AB	f	B of Tourism Catering and Home	2000	1969
SE-H	f	B of Engineering	2003	1972
SF	f	MA	2002	1976
PH	f	B of Tourism Catering and Home	2000	1964
HH-S	f	M Ed Sci	1998	1970
TH	f	B of Music	1999	1976
MH	f	B of Arts and Crafts	2000	1961
HH	f	M Sc	2002	1974
MiH	f	MA	2001	1973
AI	f	M Econ	2000	1957
AJ	f	M Soc Sci	2000	1960
LK	f	M Sc	2000	1956
TK	f	B of Tourism Catering and Home	2000	1972
TK-K	f	MA	2000	1967
SK	m	M Soc Sci	2000	1957
VK	m	B of Engineering	2000	1956
A-KK	f	M Ed Sci	1999	1961
SaKo	f	B of Tourism Catering and Home	2000	1970
Tko	f	PhD	1999	1968
Tku	f	MA	2000	1974
HL	f	MA	2000	1972
KL	f	PhD	2000	1953
TLL	f	PhD	2001	1975
SL	f	MA	2001	1957
TL	f	M Ed Sci	2000	1974
HM	m	B of Engineering	2000	1967
MM	f	M of Music	2000	1968
NM	f	M Ed Sci	2001	1976
KM	m	PhD	2001	1967
MN	f	B of Textile Arts& Crafts	2000	1974
TN	f	B of Tourism Catering and Home	1999	1970
KP	f	B of Tourism Catering and Home	2000	1956
AP	m	B of Soc Sci	2000	1960
PR	f	PhD	1999	1965
AR	f	B of Econ	1999	1965
VR	f	M of Music	2000	1968
TeS	m	M Ed Sci	2000	1962
MS	m	Lic Arts	2000	1947
AS	f	Lic Sci	2000	1954
IS	f	MA	2002	1951
TS	m	M of Engineering	2000	1964
LS	m	M of Engineering	2001	1960
AV	m	B of Tourism Catering and Home	2000	1967
KV	m	MSc	2000	1970
MVi	f	M Ed Sci	2000	1962
MV	f	M Soc Sci	1999	1955
SV	f	M Soc Sci	2001	1976
RV	f	PhD	1999	1961

APPENDIX 2

The material collected from the student teachers on different themes through the teacher education period

NAME	HISTORY	STYLES	CONCEPTIONS	LEARNER &CONTEXT	IDENTITY	PRACTICE	POST-REFL
JA	x	x	x		x	x	
AA	x	x	x	x	x		
AB	x	x		x	x	x	
SE-H	x	x	x	x	x	x	x
SF	x		x	x	x	x	
PH	x	x			x	x	
HH-S	x	x	x		x	x	
TH	x	x	x	x	x	x	x
MH	x	x	x	x	x	x	
HH	x	x	x	x		x	x
MiH	x		x	x	x	x	x
AI	x	x	x	x	x	x	x
AJ	x	x	x	x	x	x	x
LK	x	x	x	x	x	x	x
TK	x	x	x	x	x	x	x
TK-K	x	x	x	x	x	x	
SK	x	x	x	x	x	x	x
VK	x	x	x	x	x	x	x
A-KK	x		x		x	x	
SaKo	x	x	x	x	x	x	
Tko	x	x	x	x	x	x	
Tku	x	x	x	x	x	x	x
HL	x	x	x		x	x	x
KL	x	x	x	x	x	x	x
TLL	x	x	x	x	x	x	
SL	x		x	x	x	x	
TL	x	x	x	x	x	x	
HM	x	x	x	x	x	x	
MM	x	x	x	x	x	x	
NM	x	x	x	x	x	x	x
KM	x		x	x		x	
MN	x	x	x	x	x	x	
TN	x	x	x	x	x	x	
KP	x	x	x	x	x	x	
AP	x	x	x	x	x	x	x
PR	x	x	x		x	x	
AR	x	x	x	x	x	x	x
VR	x	x	x	x	x	x	
TeS	x	x	x	x	x	x	x
MS	x	x	x	x	x	x	x
AS	x	x	x	x	x	x	x
IS	x	x	x	x	x		x
TS	x	x	x	x	x	x	
LS	x			x	x	x	x
AV	x	x	x	x	x	x	x
KV	x	x	x	x	x	x	x
MVi	x	x	x		x	x	x
MV	x		x	x	x	x	
SV	x	x	x	x	x	x	x
RV	x	x	x			x	

N=50