Development Project

E-teaching
Pedagogical consideration for virtualization of education

Joachim Ramström

May, 2006
# 1. INTRODUCTION

1.1 Background

1.2 Problem statement

1.3 Purpose, limitations and positioning of the study
   1.3.1 Purpose
   1.3.2 Objectives
   1.3.2 Research contribution

1.4 Methodological issues

1.5 Structure of the paper

## 2. CONCEPTUAL DISCUSSION

2.1 Different learning styles / learning approaches
   2.1.1 Learner centered education
   2.1.2 Behaviorism
   2.1.3 Cognitivism
   2.1.4 Constructivism
   2.1.5 Life long learning
   3.1.6 Exploring the field

2.2 Important aspects of teaching
   2.2.1 Assessment
   2.2.2 Tutoring and feedback

## 3. OWN TEACHING PRINCIPLES

## 4. TEACHING ON VIRTUAL COURSES

4.1 A virtual course?

4.2 Learning styles and virtual courses

4.3 Assessment on virtual courses

4.4 Tutoring and feedback on virtual courses
   4.4.1 Tutoring as a part of the planning phase?

## 5. REFLECTIONS ABOUT OWN VIRTUAL TEACHING

## 6. CONCLUDING DISCUSSION

REFERENCES
1. Introduction

In the past, traditionally the learning environment was understood as a teacher teaching students in a classroom, face to face, during normal working hours. Although there were certainly many variations of this concept, the underlying idea was that the students were listening, to varying degree, to what the teacher had to say. Although this traditional view about teaching has been challenged and replaced with more other learning styles, such as for instance activity/abstract/reflection/concrete experience centered learning styles, many of the basic beliefs about teaching and learning has not been challenged.

Although there are a lot more learning methods available, in a lot of learning institutions students still arrive at roughly 8 or 9 in the morning, and usually leave sometimes between 14 and 16 in the afternoon. During this period of time, the students are participating in classes, often rather traditional teaching classes. The teachers interacting with the students face to face in a classroom setting and the students are sitting and listening. Quite often the students are very passive and they are fully concentrated on the content of the lecture only for a small portion of the time. To make matters even more difficult, students are often required to participate a certain amount of time in any course in order to get is passed. Such mandatory participation can have a high level or de-motivational effect on the students.

Things are however slowly staring to change!

With the (late) arrival of IT in the education system, some of these basic beliefs about the teaching and learning has been challenged and also thrown down. Students are no longer required to sit in class rooms, teachers are no longer attending classes physically and communication between learner and teacher is not longer face-to-face. Although many of the IT tools, especially e-learning, have rendered traditional understandings of learning old-fashioned, old pedagogical models are still applied to this new e-environment without further consideration. The result is often poorly implemented solutions that result in teacher confusion and student dissatisfaction. Despite the best of intentions with all these new IT teaching tools, there still seem to be a lot of problems and challenges to both teachers and students.
This paper studies the pedagogical issues and challenges that teachers face when implementing new IT related learning tools. The focus is on how traditional pedagogical issues are implemented in an e-learning environment, with a special focus on tutoring, feedback and evaluation. The title of the paper, the e-teacher, is chosen because the long-term implication for working teachers is that new IT tools are only a step in the direction of making the educational institution totally virtual. Old classifications disappear, and a new type of teacher is required – the @-teacher.

1.1 Background

The utilization of Information Technologies (IT) has become something of a “hip” word within the education system. Distance learning, e-learning platforms, teleconferences and the internet are suddenly seen as the “messiah” for teachers and students – the courses will become better, students will learn more, the teacher has a lesser burden and will have more time for tutoring, the contact between the teacher and student will become more personal and so. This euphoria seems to be growing by the day!

Based on own experiences, I argue that e-learning not only offers advantages for learning, it also offers some serious disadvantages. Many of the disadvantages are quite problematic, for instance problems with malfunctioning technology, lack of technological skills, difficulty in adapting material, difficulties in encouraging discussions and the problem of creating a personal contact with students. Another important issue, and a growing problem, that is related to the use of IT in the learning process is the students increasing tendency to copying material directly from the internet. This, of course, is in common terms known as cheating. But a more fundamental and serious problem that may arise from the practice of copying material from the internet is that students may become less able to produce own material of good quality.

In view of both the disadvantages and advantages related to the use of IT in education, I believe that it is perhaps better at this early stage of using IT that IT should be considered as merely an new, and additional tool to be used in a learning context – as a complement
or addition to more “traditional” learning tools. I am skeptical towards the idea that IT could be some sort of magical wand that has arrived to the rescue of teachers.

Disregarding the more “technical” aspects of e-learning in general, there are some fundamental pedagogical issues that need to be taken into consideration when using IT as a learning tool. One rather basic issue to consider is how the actual contact between the teacher and the students will take place. Another basic issue is what kind of examination and evaluation to use and how to adapt the content of a learning module to fit into this new environment. Because a lot of attention is easily focused on such technical aspects as availability of computer, computer skills and internet connection, the underlying pedagogical issues are often left un-debated.

1.2 Problem statement

Because virtualization of education is a rather recent phenomenon, it is only natural that a lot of attention has been focused on the technical aspects of it. A major reason for this focus on the technical issues is that the basic infrastructure has to be developed and both teachers and students have to learn to use these new tools. Therefore a lot of attention is still in many institutions focused on the more technical aspects of these new IT tools, for instance learning how to use various computer programs, improving internet connections, availability of computers and so. Although these issues are important and a fundamental requirement for using these new tools at all, I feel that there is too little attention given to the underlying pedagogical issues of using new learning tools.

There should be no doubt in anyone’s mind that for instance a “net-course” (internet based course) does not change the way for instance interaction and communication is carried out, compared to a “traditional” course. Content, examination and activation is also most likely going to differ compared to non-net courses. For teachers that have no prior experience with e-courses, these issues might pose some challenges. Even teachers that have used e-tools widely are not always familiar with the pedagogical differences between traditional and e-course. Another interesting issue in relation to e-teaching is the workload for the teacher. It is presumed that carrying through virtual courses results in a lesser workload for the teacher.
I feel that there is too little discussion about the disadvantages that are connected to IT – based learning. It is obvious that the advantages, such as for instance a possibility for increased flexibility, in-depth knowledge creation, increased student involvement and documentation make IT a very attractive alternative. But the pedagogical issues need to be brought to discussion, not only the technical aspects of it, as well as a critical discussion of both the advantages and disadvantages.

I also feel that there is a need to redefine the role of the teacher and student. I believe that the teacher’s role is changing foremost as a result of the requirement that students need to be more active. The role of the teacher moves towards being a sort of mentor or tutor, who through his or her experience guides students in finding correct and current information, which stand as a base for the student’s construction of knowledge. The role of the students also changes. They are no longer passive object, and students have to take more responsibility and develop independence, because learning becomes more self governed.

1.3 Purpose, limitations and positioning of the study

In this chapter I will present the overall purpose with the study, as well as presenting more specific questions that I will address in this study. I will also present some goals that I have set for this work. Finally I will in this chapter present some delimitations of the study as well as give a short description of how I have positioned this study theoretically and empirically.

1.3.1 Purpose

The purpose with this study is to describe and explain the challenges that face teachers when new information technology tools (IT tools) are introduced into the teaching environment. The study will address a number of pedagogical issues that teachers are faced with when moving from traditional taught courses to new types of courses. The overarching goal is to present a holistic overview of various educational aspects of moving towards a ‘virtual’ classroom. However, as the end, three educational aspects will be highlighted and discussed in more detail. These aspects are tutoring, evaluation and
feedback. In other words, the main goal with this paper is to discuss challenges related to moving towards a ‘virtual classroom’, where the challenges related to mentoring, evaluation and feedback will be highlighted.

1.3.2 Objectives

The overall objective with the study is to investigate what kind of challenges there are for teachers when learning takes place in an e-environment. This objective is relevant because of the increasing use of ICT-tools in higher education. The study looks at some of the pedagogical challenges that a teacher faces when working in an e-environment, compared to working in a traditional class-room environment. There will be special focus on challenges related to tutoring, evaluation and feedback.

The overall research problem is formulated in the following way:

What are the pedagogical challenges when learning takes place in an e-environment, especially regarding tutoring and feedback?

The overall research problem can further be divided into several research questions that I will seek to answer. The first research question, and also the first purpose, deals with the issue of teaching and learning in a new environment and using new tools. Although some teachers are already familiar with these new ICT tools, there are still a large number of teachers that are not familiar with these tools and this new environment. Regardless if a teacher has experience or not, there is a risk that teachers are using the same methods and taking the same approach to this environment compared with the traditional class-room environment. Although it is entirely possible that many of the pedagogical methods can be implemented in this environment, it is likely that some adaptation has to take place. It is also possible that new methods have to be developed and used. It is therefore a rather critical issue how to approach, as a teacher, a learning situation when it takes place in a new environment, using new tools. This purpose can also be looked upon from the point of view of considering what challenges there are when moving, or transferring a course from a traditional environment to an e-environment. What kinds of examination forms are
possible and purposeful? How can the teacher active students if the teacher cannot physically observe if the student is active? What kind of learning style is best suited in e-learning?

Based on the discussion related to the first objective, I have chosen to formulate my first research question in the following way:

- How are various pedagogical issues addressed in an e-learning environment?

The second objective is to critically assess the use of ICT and e-learning platforms in a learning environment. This issue is valid because there is a lot of emphasis on using as much ICT tools as possible in teaching. Although for instance the internet has made a huge amount of material easily available for students, there is growing concern that students are merely copying material from the internet when doing different kinds of tasks and assignments. There is also a concern that students become passive receivers of information and that the social aspects of their lives are increasingly neglected. After all, an important function of studying in any institution is to socialize with people. Therefore there are many issues that need to be addressed; How is material and content adapted to suite this environment? How is the teacher able to check if students are not only copying and pasting from material found on the internet? How is communication promoted? How is instance group work conducted?

Based on the discussion above I have formulated the second research question;

- What are the advantages and disadvantages of using ICT and e-learning tools, and is teaching in an e-environment different from teaching in a traditional classroom environment?

The third objective is to single out three pedagogical issues, which are important regardless of the teaching environment, that is, tutoring, evaluation and feedback. The objective is to more in-dept study these three issues and to identify opportunities and threats related to managing these issues in an e-environment. This purpose is of a more normative nature and brought forward in order to more easily highlight the challenges that exist when teaching in an e-learning environment.

- How does tutoring, evaluation and feedback take shape in an e-environment?
The overall purposes of this thesis are operationalized in several themes. First of all I will look at concrete pedagogical issues when transferring a “traditional” course to an e-learning platform. Areas of interest are evaluation, content, feedback, communication, and tutoring. This involves looking at how the interface between student and teacher is designed, redefining the role of teacher and student, interactivity, and adapting tools for use in e-courses.

### 1.3.2 Research contribution

There is a growing trend in most education institutes to increasingly use ICT and to transfer courses to some of the available e-learning platforms. This has been made possible by advancements in IT technology and increased availability of computers and other software. But this increasing use has also been prompted by the demand of graduating more students and making studies more effective. IT and e-learning have been regarded as a solution for more efficient studies and learning.

The main problem, as I see it, is that the implementation of ICT and e-learning has been conducted without thorough consideration of the implications and challenges of using these new tools and methods. As evidence to this matter is that it is only now that there is an increasing amount of courses and training available for teachers who are using these new tools. I have also witnessed in several educational institutions that ICT and e-learning is being introduced without any discussion or consideration about the underlying pedagogical issues related to teaching and learning this way. This is evident by the fact that many of the teachers involved and touched by these issues are typically acquiring the necessary skills AFTER the e-strategy has been implemented.

Additionally there is a concern that not all teachers are going to absorb these new tools and methods. There might be several reasons motivating teachers not to absorb these changes. One reason is surely that e-teaching implies a re-defining of the role as teacher. For many it might feel unattractive not to have face-to-face contact with the students, and some might even not want to become a teacher that conduct all of the work in front of a computer. Another reason for swaying away from using ICT tools is a discomfort with
learning to use them. Many might feel overwhelmed by learning to use new soft- and hardware.

I therefore argue that it is of outmost important to study how these new tools and methods are affecting and will affect teachers. I believe it is very important to highlight the central pedagogical issues and determine how these are affected by e-learning. I also believe that it is important to present, in a systematic way, what the major differences are between being a “traditional” teacher and an “e-teacher”.

1.4 Methodological issues

This is a purely conceptual paper. Different educational concepts are discussed, mainly from a virtual educational point of view. The theoretical framework will consist of various pedagogical issues, or themes. These themes are studied both from a e-learning perspective and also from a traditional teaching perspective. These themes will relate to the teacher and hence the teacher is the unit of analysis. My main source of data for this research is secondary data, such as books, journals, documents, and lectures. This study does not contain an empirical study, because the purpose is highly conceptual, and therefore an empirical study is not necessary. However, although this paper is conceptual, it builds on own experiences from using various tools in an e-teaching environment. Foremost I have gathered a lot of experience from using two teaching platforms, Blackboard and Moodle. I have used these extensively in at least 5 different courses, some of which have been completely virtual courses, where all interaction, exchange, task, etc. have been conducted within the teaching platform.

My main motive for conducting this research touches upon the very core issue of my own motivation for becoming a teacher. My initial motive for dwelling into the teacher profession was my interest in developing different methods for presenting a block of information to students. The first spark of interest was ignited when I had the chance of spending first 6 months in an institute in Singapore and then 13 months in a university in Sweden. These experiences made me aware of the large differences there the approaches to teaching. I realized that there were a great many more tools and methods than those few
that I had been confronted with during my studies in Finland. As a result of this realization I wanted to take the best of the different methods and use them in a learning situation.

My other motive for becoming a teacher is that I enjoy interacting face-to-face with people and my passion for raising interest my subject. I have realized that I might have to re-define my role as a teacher if I am conducting all of my teacher activities through for instance a web-based learning platform. To put it in another way; If one of my main motives for being a teacher is that I am able to interact face-to-face with the students, how can I motivate myself if that way of interacting is not possible? Do I want to be a teacher if it means that I have to spend all of my time in front of a computer? Am I comfortable with the role of being a teacher that never sees the students? Furthermore, how am I able to use of modify the teaching methods, which I have developed and become so fond of using, to this new environment? And finally, do I want to be a teacher that promotes people to spend more and more time in front of their computer, interacting and socializing only in a virtual world?

This paper is mostly explorative. By explorative research is understood research with the purpose is to understand a specific problem area and there is only limited knowledge about it. The researcher is flexible and open-minded, and is prepared to run into areas not anticipated prior to the research process. A descriptive process is used to clarify facts and correlations between certain problems. It is often used where there is knowledge on the research topic. Although the process aims to describe a certain aspect, it also investigates the issue in-depth. The aim is to provide a thorough explanation of a phenomenon, for instance establish cause-and-effect between different factors and actors. It often corresponds to the analysis of findings with the aim of answering research questions or hypotheses. My motive for using an explorative approach is that is allows a great degree of flexibility to experiment with different variables and views.

1.5 Structure of the paper

This paper is divided into six major sections. The first section of the paper outlines the setup of the paper, containing the background of the study, the purpose and the objectives. It also discusses some methodological issues. The second major part of the paper deals
with conceptual issues. This section gives brief outline of different approaches and some important aspects of teaching and learning. The nature of the discussion is holistic, and focuses on the traditional view of teaching. The purpose is not to offer a thorough discussion of various learning approaches, but rather to briefly outline the main content of various approaches.

The third major section of the paper discusses my own principles and view on teaching and learning. This section is important in order to understand some of the approaches I take while planning and carrying through teaching. Some of the issues discussed in this section are for instance which learning approach I feel closest to, how I view various important teaching issues, as well as some of my underlying assumptions about being a teacher.

The fourth section discusses teaching on web based course, or so called virtual courses. Those aspects discussed in section two, that is, learning approaches and important elements of teaching, are further discussed, however, from a virtual perspective. This section also offers a more in-depth discussion about tutoring and feedback on large virtual courses, and offers some holistic views on how to carry through tutoring and feedback on large virtual courses. The second last section of the paper, the fifth section, discusses how my own view of teaching and learning take shape on virtual courses. In this section I bring forward some issues and discuss from the perspective of a virtual course.

The final section of the paper, the sixth section, concludes the paper and the discussion evolves around various challenges related to virtual teaching, and also offers some thoughts about future developments. The purpose with this section is to offer some major conclusions and thoughts.

2. Conceptual discussion

Because of the difficulty in exactly defining a e-course and even more, defining what constitutes a e-course tool, I will not in this paper discuss different tools and the differences between traditional courses and virtual, or web-based courses. On the other
hand, it might be fruitful to conduct a short discussion about how various ‘learning theories’ can be viewed from a virtual teaching perspective, that is, what learning styles might be suitable for e-courses.

Epistemology concerns assumptions about how we as humans get or create knowledge, and ontology deals with questions concerning the nature and type of social entities, that is, are social entities objective units that have an outside reality, or are social entities to be perceived as being constructions based on the actors perceptions and actions (Bryman, 2002). Hatch (2000) distinguishes between two main epistemological questions at issue, objectivism and subjectivism, and three ontological questions at issue, modernistic, symbolic-interpretative or post modernistic. Bryman (2002) distinguishes epistemologically between positivism and an interpretive perspective and ontologically between objectivism and constructionism. How I am as a teacher is strongly influenced by the way I relate to how knowledge is created and how human get it. In essence, me views on teaching originates in the way that I believe that students learn.

The world, or the social reality, is constructed between individuals through “negotiations” and implicit understanding, which in turn are built based on a common history and shared experiences (Hatch, 2000). Those categories that people use to understand both the social and natural world are in essence social products. These categories do not have any build-in or obvious essences, rather, the actors create their meaning to through interaction. For instance, a category such as masculinity is understood as something that is constructed through people interacting with each other, not as a distinct or set entity (Pondy, 1967). This also means that the meaning of any specific category will be very elusive, because is changes over time and from one place to another (Bryman, 2002). For the purpose of this paper it means that different teachers, and different settings / contexts, are going to mean different things for different teachers and students. Each teacher interprets his or her own reality, and the same is true for students. The implication is that although some general comments can be made, for instance offering some pedagogical solutions, it might not be possible to entirely transfer experiences and solutions to new settings / context and expect the same outcome.
2.1 Different learning styles / learning approaches

Already now it is worthwhile to point out that the author of this paper does not believe that one or another approach is more or less suitable for one form of teaching or another. In other words, all approaches are useable in both a ‘traditional’ environment and virtual environment, although different aspects are highlighted. This insight builds on the idea that learning, regardless of how and where it takes place consists of two parts. Firstly, the person involved in the learning situation need to be susceptible to new knowledge and new experiences. Secondly, the person involved need to find a very own and personal meaning for everything. Hence in order to learn, an individual need to acquire knowledge and acquisition have to be an active process of learning (Vygotsky, 1978).

2.1.1 Learner centered education

Learner centered education is an important element of educational sciences. This facet of pedagogy is important to teachers because is also involves the aspect of the relationship between the student and the teacher. For instance, should the teacher apply different approaches to education depending on the students’ belief about the nature of knowledge and their conception about learning? As is quite commonly known, students’ efforts depend on their perception of how learning will reward them. Also, student approach learning situations in different ways, some feel they want to learn to apply, while other want to learn to understand. In many ways, the students own beliefs and values influence how they perceive learning. This also means that students are likely to adapt their approach to learning as circumstances change, for instance if learning takes place in a ‘traditional’ class room or in a virtual classroom. Even if learners are responsible for their own learning, teachers need to be aware that the context of the learning situation will affect the students’ perception about learning.

One important notion is that since beliefs about learning and knowledge is influenced by individuals’ perceptions and judgment, they will also influence perceptions and judgments about various tasks (assignments) in a learning context (Rogoff, 2003). One interesting question therefore becomes how to best facilitate learning for students. Since learning is influences by beliefs and values, and since these are likely to vary from student to student,
it might not be possible for the teacher to apply a fully learner centered approach, meaning that each and every individual is taken into consideration. This is especially true in situations where the group of students is large.

2.1.2 **Behaviorism**

According to behaviorism learning focuses on observable and measurable criteria (physical activity). Hence thoughts, emotions and motives (mental activity) cannot be measured. Learning has occurred when there is a change in behavior, and thus, based on observable behavior, the teacher will then know whether or not the learning has occurred. A central tenet of behaviorism is the principle of repetition and reinforcement and the use of drill and practice activities are rooted in this theory.

2.1.3 **Cognitivism**

Cognitivism is based on an idea of the importance of how learners perceive, interpret, store and recall information. Based on cognitivistic principles, learning is facilitated by presenting information in an organized fashion and by helping the learner to see the connection between things. It is also important to focus on making sure that students associate new information to already known information, which will lead to the learner grasping the concept quicker and more effectively. A central tenet in cognitivism is that the learners have to be actively participating. Therefore, even though there may be a physical activity (behaviorism), the mental activity (thoughts, attitudes) is also important in this theory.

2.1.4 **Constructivism**

Constructivism is based on the idea that learning is a collaborative, reflective and experiential process. As students interpret their reality they construct meaning and knowledge. The aim for the teacher is to engage the learner and to tutor them, in order to make the learners become part of the learning environment, instead of giving information to a passive learner. Throughout the learning process the student constructs his own
interpretation of the outcome while collaborating with peers and the teacher, by accesses a variety of material (text, web, videos etc.).

2.1.5 Life long learning

Students must be prepared for lifelong learning – and its demands. One of the key factors is installing value to the community (of learners), and other issues such as group working (in class), critical thinking, ability to critique and accept criticism, develop differing viewpoints, appreciate difference, etc. The teacher is required to create the right environment to facilitate this, which means for instance that the teacher must provide ideas and stimuli, that the school environment is appropriate, etc. All in all education need to be 1) holistic, involving many different types of learning activity, in the classroom and outside 2) students are involved in the process as active partners with the teacher, not just spoon fed information 3) student interaction drives the learning process.

Learning should also be seen in terms of the social and cultural context; a learner’s perception of what is useful in learning are shaped by the formal and informal the nature of knowledge, the learning process, the context, prior knowledge and experiences and how it will benefit them in the future. For example part time students will have different conceptions than student that come directly from secondary education. Part timers see interrelations between domains; full timers see it as disparate units of information. Also diverse cultural groups see learning and knowledge different. In Asia learning is perceived as a duty, and memorization as integral part of understanding, while in the west learning is not duty, and students more readily seek help from other to achieve goal. In the west memorization is associated with rote learning and viewed as poor learning.

One interesting issue, worthwhile mentioning is, that there are really no best or right learning view (approach), because all views have their strengths and weaknesses. Activities that represent behaviorism is for instance learning by doing and role play, and also repetition and frequent practice. In this view it is also important to give feedback as a method for reinforcement. The cognitive approach stresses understanding, especially of meaningful new information. It sees learning as an active process, and learners make their concepts themselves. In this approach real practice is mixed with feedback. The
humanistic approach sees as a central relevant issue the learner’s need and to encourage the learner’s natural curiousness. The learner makes his or her own purpose and goals. Learning should take place in a non-threatening environment.

Furthermore, teachers are also individuals, meaning among other things that different teachers might have different views on learning; one might be oriented towards a more behaviorist view, another more towards a cognitive or constructivist view. It is also true that a teacher usually uses a mix of many approaches. But it could very well be that the teacher uses different views depending on the level he or she teaches. A teacher might use one view during basic courses, where there is a need to learn new concepts and memorize for instance terminology. As the students move to more advanced courses, the teacher changes view, where there thought was that on advanced and higher level courses, and especially in PhD courses, a constructivist and cognitive methods might suit the students best. Therefore the teacher moves from one view to another as the student’s progress in their learning and knowledge and their demands and skills change. Ideally a teacher should be acquainted with the different learning views and have a “tool bag” with different methods and techniques to use in different situations. The teacher must, however, be prepared to be flexible and use different methods because not all students learn in the same manner.

3.1.6 Exploring the field

The three theorists presented below, Rogers (1994), Bruner (1996) and Cross (1981), are all in one or several way building their ideas based on ideas presented by Dewey (Dykhvizen, 1978). Roger emphasizes experiental learning as the most important method in making sure that people acquire knowledge. Bruner sees the learner as an active participant. Although the process of acquiring knowledge is being influences by social and cognitive structures, Bruner encourages students to be active participants and to discover things by themselves. Cross (1981) points out, in a very clear way, that different individuals will learn in different ways, and that there are several factors that will affect the ability of learning. This is important to keep in mind when planning teaching.
Rogers distinguished two types of learning: cognitive (meaningless) and experiential (significant). The former corresponds to academic knowledge such as learning vocabulary or multiplication tables and the latter refers to applied knowledge such as learning about engines in order to repair a car. The key to the distinction is that experiential learning addresses the needs and wants of the learner. Rogers lists these qualities of experiential learning: personal involvement, self-initiated, evaluated by learner, and pervasive effects on learner.

To Rogers, experiential learning is equivalent to personal change and growth. Rogers feels that all human beings have a natural propensity to learn; the role of the teacher is to facilitate such learning. This includes: (1) setting a positive climate for learning, (2) clarifying the purposes of the learner(s), (3) organizing and making available learning resources, (4) balancing intellectual and emotional components of learning, and (5) sharing feelings and thoughts with learners but not dominating.

According to Rogers, learning is facilitated when: (1) the student participates completely in the learning process and has control over its nature and direction, (2) it is primarily based upon direct confrontation with practical, social, personal or research problems, and (3) self-evaluation is the principal method of assessing progress or success. Rogers also emphasizes the importance of learning to learn and an openness to change.

A major theme in the theoretical framework of Bruner is that learning is an active process in which learners construct new ideas or concepts based upon their current/past knowledge. The learner selects and transforms information, constructs hypotheses, and makes decisions, relying on a cognitive structure to do so. Cognitive structure (i.e., schema, mental models) provides meaning and organization to experiences and allows the individual to "go beyond the information given".

As far as instruction is concerned, the instructor should try and encourage students to discover principles by themselves. The instructor and student should engage in an active dialog (i.e., socratic learning). The task of the instructor is to translate information to be learned into a format appropriate to the learner's current state of understanding.
Curriculum should be organized in a spiral manner so that the student continually builds upon what they have already learned.

Cross (1981) presents the Characteristics of Adults as Learners (CAL) model in the context of her analysis of lifelong learning programs. The approach of two classes of variables: personal characteristics and situational characteristics. Personal characteristics include: aging, life phases, and developmental stages. These three dimensions have different characteristics as far as lifelong learning is concerned. Aging results in the deterioration of certain sensory-motor abilities (e.g., eyesight, hearing, reaction time) while intelligence abilities (e.g., decision-making skills, reasoning, vocabulary) tend to improve. Life phases and developmental stages (e.g., marriage, job changes, retirement) involve a series of plateaus and transitions which may or may not be directly related to age. Situational characteristics consist of part-time versus full-time learning, and voluntary versus compulsory learning. The administration of learning (i.e., schedules, locations, procedures) is strongly affected by the first variable; the second pertains to the self-directed, problem-centered nature of most adult learning.

2.2 Important aspects of teaching

In this chapter three important aspects of teaching is discussed, that is assessment, tutoring and feedback. Each part is understood to have a critical impact on the learning.

2.2.1 Assessment

Assessment is considered an evaluative process for measuring the professional competence or skills of a learner within a learning process. It is often seen as a process of collecting or collating information about a learner’s knowledge, ability or skills or his/her progress in any learning process.

In this way, assessment is a continuous and an on-going process, which is an essential part of any learning process. It may involve a teacher taking a sample of a course content to test learners and infer from the outcome a learner’s knowledge. From the definition, any assessment process is a means of measuring the effectiveness of a learner’s uptake and
understanding of taught information. It functions as a judgmental tool of appraisal on a learner’s skills and abilities, but more specifically it is used to:

- Measure a learner’s improvement in learning overtime
- Evaluate strengths and weakness of a learner
- Rank learners for inclusion or exclusion in a given area of work
- Motivate learners in a learning process

Assessment in and out of the field of pedagogy and education is also seen as a process of accountability for the quality of learning produced, i.e. assessment is not only learner-centered but also focuses on the quality of teaching given to the learner.

Because learning and development occur over time and because all students don’t learn or develop what an institution values at precisely the same time or under the same kinds of pedagogy or educational experiences, assessing student learning and development is the responsibility of both academic and student affairs. What some students learn in the classroom, other students may learn during their participation in co-curricular activities. What students learn in a course or program of studies may be deepened - even challenged - in their residential life experiences or in their community service work, for example.

Assessment is a means of discovering - both inside and outside of the classroom - what, how, when, and which students learn and develop an institution’s expected learning outcomes. Interpretations of assessment results enable an institution to verify how well it is achieving its desired outcomes, as well as to determine how it will improve the quality of education to improve desired outcomes. The most important criterion when selecting an assessment method is whether it will provide useful information - information that indicates whether students are learning and developing in ways faculty have agreed are important.

There is a rich flora of different assessment methods that can be used in a learning situation. What method a teacher will use depends on many things, such as the size of the group, the age of the group, the subject, the teaching platform, the structure of the course, the expectations of students and teacher and so on. At first it can be said that exams can be
categories into four main groups. 1) natural exams 2) simulated exams 3) oppressed exams 4) artificial exams

Natural / authentic assessment means that the student is using knowledge and skills in a real or real-like situation, which typically means that the student is to solve a task that is typical for his subject in a real performance situation. This form of assessment prepares the student for situations that he or she is likely to confront in his or her own branch. Examples of such an assessment if for instance practice sessions etc.

The simulated exam is an exam that simulates reality but it is without the responsibility of the real performance situation. Examples of simulated exam are problem centered exam, fast report, poster exam, portfolio exam, future workshop, research project, day exam, drama exam, open exam, provocative problem exam, and simulated patient.

The oppressed exam is similar to artificial and simulated assessment. The main idea is to oppress the traditional exam as much as possible. For instance, a student is not required to write the exam in the examination room, but allowed to take the exam, to seek information, to evaluate the information, to structure it. Some examples of an oppressed exam are literature dialogue exam, lecture dialogue exam and home exam.

The artificial assessment method is a constructed situation that does not have a connection to real life. There are several examples of artificial exams, foremost variation of traditional exams, such as material with you – subject exam, assignment in advance, verbal exam, lecture supporting exam, group exam, verbal exam where the students make questions themselves and answer in groups, multiple choice, context bound multiple choice, motivation required multiple choice and assessment of multiple choice.

2.2.2 Tutoring and feedback

Here two very important aspects of learning are discussed, namely tutoring and feedback / evaluation. These two aspects are important for the learner. Evaluation steers students setting of goals as well as their study orientation. Students’ sets their own personal goals based on, partly those criteria that are available for evaluation of different tasks, and partly
based on the feedback they get. Their continuing study goals are, therefore, to a high
degree dependent of the kind of evaluation they get. Usually evaluation takes the form of
only a grade, for instance on a scale from 1 to 5. In such a case, where the students only
evaluation is a grade for an assignment, it becomes very difficult for the students to set
personal goals and carry through their own study orientation. It becomes even more
difficult if those criteria used for evaluation an assignment are not clearly stated. A study
by Nevgi & Juntunen (2005) clearly shows that the feedback a teacher gives has high
importance for the students’ reflections of his or her own learning.

There should be no doubt concerning the importance of tutoring and feedback during any
course. Through good tutoring teachers are given the best possibility to pass an
assignment with good performance. Although there are many ideas and thoughts about the
content and meaning of tutoring, in this paper I view tutoring as the whole process that
supports students throughout the course, that is, from the point of students enrolling, to the
point when the students have passed the course. Technically, tutoring can take shape in
many different ways, everything from pure instructions to ‘face-to-face’ discussions to
support students in a specific task. In other words, tutoring takes different forms
throughout the course. Seen from this perspective, tutoring is indeed a process.

There are also surely no doubts about the importance of feedback and evaluation for the
students learning process and development. Feedback is an important aspect of the
learning process. Through feedback the students finds out what they know and what they
do not know. Therefore it is important, as a teacher, partly to give feedback, but also partly
to be honest and give constructive feedback. One should also remember that feedback is
never one-directional, rather, feedback should be seen and understood as a reciprocal
action. As a teacher, one should also encourage students to make self-evaluation
(@duline, 2005).

Unfortunately often evaluation and feedback on many courses are conducted only by
giving the students a grade, for instance the grade 3 on a scale from 1 to 5. Based on this
grade, teachers expect students to understand and to get an understanding for what was
good with the assignment, what were weak points, etc. Unfortunately, quite a few number
of students have the capability to critically evaluate their assignment in light of a mere
number, and based on this grade, or number only, get an understanding for what improvements could be made for the assignment. This question could be asked. Isn’t the purpose with having students do assignment that they should gradually improve their skills? In what way can they do it if they never get other feedback than a number? Therefore, it is very important that students get some other form of evaluation than a mere number in order to be able to identify strengths and weaknesses in their work, and in that way be given an opportunity and prerequisite to develop their skills for future assignments. Hence, the perhaps best form of evaluation is to give oral or written feedback on the students work.

The kind of feedback that a teacher gives to the student is very important for the students’ reflections about his or her own learning. The feedback from the teacher also strongly correlates to the intentionalism of learning and the transferability (transferable to other contexts (Nevgi & Juntunen, 2005). The feedback from the teacher also has a connection to the students implementation of his or her own study planning and own tutoring, as well as the ability to apply what has been learned in new situations (Nevgi & Juntunen, 2005). This means, in other words, that feedback and evaluation has a very central importance for the students learning process.

3. Own teaching principles

“Every history and every description depends on the perspective of author” – Hatch, 2000.

To begin with, I have to admit that I am an anti-positivist and objectivist. Positivism employs natural scientific methods to the study of social reality and all its aspects. Followers claim that such phenomenon that only can be perceived through once senses can be regarded as knowledge and science is and should be objective. Positivism is also considered descriptive. Objectivism claims that social events and their meaning have an existence which is independent of social actors and social actors cannot affect them.

The interpretive perspective, as described by Bryman (2002), stresses understanding rather than description. Because knowledge is relative to whatever is studied, I believe that the
only way to create knowledge and understanding about anything is on the basis of the perspective of the participants involved. In other words, reality is shaped by the subjective experiences of the individual. In more practical terms it mans that instead of perceiving a student as an object that needs to be measured and analyzed, I see the student as a subject, and how the student behaves, learns and expresses him/herself need to be interpreted and understood.

I am also strongly constructivistic and subjectivistic (Bryman, 2002, Hatch 2000). I don’t believe that anything can be studied by observers who are independent in relation to what they are interested in (subjectivism). All kind of new knowledge is created by an observer who is by nature subjective, because all knowledge is ultimately filtered through the observer and thus in essence changed by cognitive and/or social and cultural factors (Hatch, 2000). Each and everything is embedded in a social and cultural context, in other words, it is shaped by social and cultural forces (symbolic-interpretive), which ultimately means that in a learning situation, knowledge that the students acquire is constructed (constructivism) by the participants experiences, ideas, statements and perceptions. Therefore I want to emphasize the individuals active role in constructing their social reality.

So, taking this to a more practical level, meaning, explaining how this is evident in my teaching. First of all, I have altogether gotten rid of everything that is called a written exam. I feel that the poorest tool for learning is by hard reading one or two days before the exam. I have swapped written exams with other forms of examination. In these forms, students are required to combine their experiences with the material that they are going through. Because, it is simple fact that, for instance when teaching management, each and every student has been active in an organization, for instance summer job, ice hockey team, etc. and they all have experiences of being part of an organization. This they are to use when they prepare written reports to me. Usually what I do is that the students are required to pick out from the literature those points that they consider important, and then relate that information to their practical experiences. In terms of shares, 1/3 is literature review, and 2/3 is always analysis bases on own experience. In this wave I believe that the students are able to create knowledge better because they relate it to something that is
familiar to them. I also believe that in this way they will also be able to make the all important “practical” connection to what they are studying.

The other main idea of mine is that I have abolished 1.5 hour lectures where I talk during the whole time. I have tried to minimize the amount of time I am speaking, and I am using that time to have students discuss and present material that we have gone through. I see my role more as using my experience to choose between all the literature there is, and show students what is current and actual topics in working life. I also believe that my task is mainly to motivate the students, to give them new teaching methods, to vary my lectures, and to offer them both the challenges, as well as the tools to solve challenges.

I also always encourage the students to put “their own touch” to their reports. That means they are required to analyze and write reports which always includes their own comments, own ideas and suggestions. I am always also reminding them that they should continuously be critical towards what I am telling them. The reason for this is that the knowledge I have acquired is influenced by my way of seeing things, being a subjective observer as I am. Therefore I want them to be critical, to realize that what I say is my interpretation of a phenomenon, but that their task is to construct their own knowledge, and then compare it with that which I am saying. After all, we have both read for instance the same article, but during discussions, it always becomes obvious that there are many views on what is said in the article. I believe the main reason is that students always try to combine what they are reading with something that they have experience of, and in that sense “making sense” of what they read or hear.

I am also now trying more and more make the student evaluate their own efforts. In a way, this is both new to me and to them, and it is a kind of experimenting still, because I or the students are not familiar with this type of studying. One could say that a great contradiction is how I am trying to be as a teacher is that students are “not familiar” with any other type of learning situation but the one that consist of 1.5 hour lecture, one written exam and a work paper of 10 pages. So, the students are doctrinated to behave and think in one specific and similar way. What I also dislike with this standard method is that, if you have an exam, you are never really testing the knowledge of the student. You are testing how well he is able to repeat what has been written somewhere. It does not encourage the
student to be critical towards the material he or she is studying. It does not encourage the student to reflect upon it, and it certainly does not encourage the student to combine it with his or her own experience.

The final reason that I am trying to come up with new methods of teaching is that there are more and older people are studying again. This means that there is often a mix of younger people, and more experienced people in a learning situation. This has to be taken into consideration, because, as noted earlier, older people with experience seem to construct knowledge in a different way that younger people with no or little experience from working life.

The one author that has made the greatest impression on me as a teacher is John Dewey. John Dewey (1899, 1910) was the first to acknowledge that “learning by doing” is an important element in any teaching situation. Dewey stresses that only active participation by the students enables learning to take place. It also means that the student is using past experiences and combining new knowledge with past experiences. This also implies that each and every student will learn in his or her own way. On that point Dewey states that each individual learns in different ways, and the task of the teacher is therefore to make sure that students get access to different means of acquiring the knowledge that they need. John Dewey, to a large extent, applies his theories on children, and also includes a section that notices that children should be allowed to learn in their own pace.

Another issue which I think is very important is how knowledge is perceived to be created. The consensus, talking from own experiences, is still that of a teacher having some specific knowledge that he or she passes along to the students. This is easily seen in quite a number of teaching situations where the teacher is "lecturing" during a 1.5 – 2 hour period while the students are passive listeners that should absorb the "knowledge" that the teacher is passing along. Never is there any concern about the participation of students, their involvement, and knowledge creation based on the experiences of the students. I am therefore a strong opponent of the whole concept of teaching. I do not believe that anyone is able to "teach" another person. Since knowledge is created by the students themselves, a teacher is therefore only a person that is to provide tools, methods, his or her experience and also functions as a motivator.
I would say that today the teacher is as much a learner as a teacher. Continuing learning is a challenge, especially since there are many new teaching tools, such as e-learning, which requires a different type of methodology. Students are also increasingly demanding an individualization of education, and new methods have to be learned through teacher education. There will always be the question of which tools are relevant and which are useful for which situations. Social interaction is extremely important in developing the educational institution. Students are encouraged to actively take part in their education, and the challenge for the teacher is to make sure that students are given the possibilities and tools to construct their own knowledge.

4. Teaching on virtual courses

Is teaching on a virtual course different from teaching on a traditional classroom course? Of course, in the latter example the teacher sees the students physically, while there is typically little or no physical interaction on a completely virtual course. But other differences, such as how tutoring and feedback is conducted? What are the differences, if any, concerning such aspects?

This chapter places the discussions so far in the context of virtual teaching. By virtual course is understood a course that has some or all tasks taking place within a virtual teaching platform, such as for instance Blackboard, Moodle, R5, Optima, Lotus Learning, WebCT, or similar. The first part of this chapter deals with the concept of a virtual course, and what could be considered a virtual course. The second part of this chapter deals with the various learning approaches outlines in chapter 2. This chapter also focuses on tutoring, feedback and evaluation on large, virtual courses. There are, however, few solutions offered, since the discussion is holistic and conceptual. The purpose is rather to discuss if, and in that case how, various elements are different in a traditional classroom environment compared to the virtual environment.
4.1 A virtual course?

There is no clear definition on what constitutes a unique educational IT tool. There is likewise no clear definition what an e-learning tool specifically is and how such an e-learning tool is different from a ‘traditional’ learning tool. Is e-mail an e-tool? Or CD-ROMs? Perhaps e-book and interactive books are e-learning tools? Maybe chat forums or video-conferences? These are of course tools used extensively with the realm of virtual teaching, but are they unique to these contexts? Of course they are not; they are also utilized during ‘traditional’ courses. The argument in this paper is that such attempt to classify or identify e-tools or ‘traditional’ tools is not fruitful. A more usable approach is to consider what tools are possible to use in an virtual environment and which are possible to use in a more ‘traditional’ setting.

However, this conceptual mix becomes even greater considering the fact that, for instance a course, does not have to be completely virtual or completely ‘traditional’. For example, a ‘traditional’ course can also have various virtual components, and there are various degree of virtuality. A course can for instance be completely virtual, net based, use the net as a distribution tool, and so on. To give a few examples. On a course which is foremost ‘traditional’, a teacher can still use an e-platform where all the material and references are placed, for instance using Blackboard, Lotus, Moodle, R5 or so on. A ‘traditional’ course can also utilize vide conferences, as well as various web pages with links to course material on the net. A teacher can also give PowerPoint presentations during courses, and there can be a discussion forum where the students have to active during a part of the course. Chat (discussion forums) for feedback and tutoring can be used, as well as using e-mail for feedback and comments. On the other hand, more virtual courses can contain physical lectures and study seminars, etc. The pure e-course does not typically exist, because during most virtual courses participants meet physically, and there are sometimes also final presentation occasions at the end of a course.

As the discussion above clearly points out, there are no clear distinctions or definitions on e-courses. So, what does teaching ‘in the net’ mean? Different people have approached the question in different ways, and teaching ‘in the net’ can mean very different things. One fruitful way of approaching this question is to view teaching along to dimensions;

- is the net the only aspect or one of several forms of teaching?
is a product made for the net, or is the net an working environment, that is, is the purpose to create a process?

Source: www.tievie.fi, 2006

In other words, many different tools are used for various purposes and in different forms and degree, and different tools are often used to supplement other tools and activities.

### 4.2 Learning styles and virtual courses

Applying the notion of learner centered education to the context of this study; it means that students are likely to approach a virtual learning experience, if it is a new experience, with values and beliefs that are based on a more ‘traditional’ class room experience. This means, among other things, that teachers in a virtual classroom might have to spend some time approach the issue of prior beliefs and values, since these might influence the outcome of the learning situation.

A central tenet of behaviorism is the principle of repetition and reinforcement and the use of drill and practice activities are rooted in this theory. As can be seen from this definition, behaviorism can very well have a place in a virtual classroom, although observing

<table>
<thead>
<tr>
<th>Verkko osana muita opetuksen muotoja (monimuoto)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bu</td>
</tr>
<tr>
<td>- oheismateriaali</td>
</tr>
<tr>
<td>- luentokalvot</td>
</tr>
<tr>
<td>- linkkilistat</td>
</tr>
<tr>
<td>- kurssisiteet</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Verkko on jakelukanava</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
</tr>
<tr>
<td>- itseopiskelupaketit</td>
</tr>
<tr>
<td>- e-kirjat</td>
</tr>
<tr>
<td>- automatisoidut testit</td>
</tr>
<tr>
<td>- ilmoittautumis-järjestelmät</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Prosessi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verkko opiskelua-ja työympäristönä</td>
</tr>
<tr>
<td>Oppijan aktiivisuus olennaista</td>
</tr>
</tbody>
</table>

Vain verkko
behavior is challenging. On the other hand, repetition is not a unique tool to traditional teaching, and is equally important in all learning contexts.

One could argue that cognitivism is a useful approach in virtual and web based courses, since little, in any of the learning takes place in class rooms. The students are not able to passively sit in a classroom, but are required to actively seek information, prepare assignments, and to discuss assignments and tasks with other participants. Since most virtual courses make use of some form of learning platform, information should always be organized and structured. However, it is an equal challenge during virtual courses as during traditional courses to make sure that students are actively attempting to use prior knowledge in order to solve new assignments and tasks.

Constructivism is an appealing approach for virtual courses. Not because of the idea of making use of several sources of material, but because of the central pillar that collaboration has. A virtual course relies heavily on collaboration between the student and the teacher, and the students among themselves. Virtual courses also allow various methods for communication and collaboration, and it is not dependent on time or place. In other words, students are able to conduct their studies at different times than the normal 9-5. Furthermore, since a completely virtual course has no lectures and such, more of the teacher’s time and role is to function as a tutor.

Regardless of the teaching environment, all teachers would optimally consider learning as a process, consisting of various steps of stages (Engeström & Miettinen, 1999). The first stage is motivating the students, the second is orientation and knowledge sharing, the third stage is for the students to internalize the knowledge, and therefore externalize what learning has occurred. In the fifth stage students are critically evaluating their learning process and outcome, and finally they are making self-assessment, in order to identify mistakes and successes.

4.3 Assessment on virtual courses

The total evaluation process, where feedback is one sub process, should usually be reconsidered when parts of a whole course is offered on the internet. Usual, regular
evaluations often lose their meaningfulness on the net, and therefore other solutions need to be found. This is also a question about motivation, because motivation and evaluation is closely connected, from the points of view of the learner. In fact, it is a fact that students conduct such activities that they are rewarded for (duline, 2005).

Another important factor to take into account when discussing assessment methods is the increasing use of different types of e-learning tools. Not all assessment methods used in “traditional” teaching environments are suitable or possible to use in e-learning environments. A typical example of this would be different variations of verbal exams. Verbal exams are fairly easy to conduct in a traditional environment but rather difficult to carry through in an e-learning environment.

The teacher also has to take into account that some of the assessment methods are more useable in one environment in front of the other. Multiple choice assessment methods are very good for e-learning platforms because they can be automated quite easily, which means that the teacher will not be required to evaluate the exams by hand. Instead the platform will do the assessment and print the results.

Both direct and indirect assessment forms can be used during virtual courses, for instance:

- portfolios that collect student work over time and demonstrate students’ abilities to monitor and reflect on their work, providing longitudinal evidence of student learning and development. Portfolios can be reviewed by faculty members from the program, faculty members from outside the program, professionals, visiting scholars, or industrial boards.

- course-embedded assignments, providing evidence of how well students transfer learning into a new context. These assignment are projects, assignments, or exam questions that directly link to program-level expected learning outcomes and are scored using established criteria.

- performance or a case studies, along with students’ analysis of how they solved the case study, providing evidence of students’ abilities to apply, synthesize and solve
problems. Case studies may be used over time to track the development of students’ knowledge or abilities

- essays, providing evidence of students’ abilities to represent ideas, solve problems, synthesize

- intercollegiate competitions is useful for assessment when students are asked to demonstrate knowledge or skills that are related to the expected learning outcomes for the program.

There are also indirect assessment, for example:

- exit interviews (feedback) and student surveys that provide meaningful assessment information, exit interviews or student surveys should focus on student learning (knowledge, skills, abilities) in addition to student satisfaction.

- tracking student data related to enrolment, persistence, and performance. These data may include graduation rates, enrolment trends, transcript analysis (tracking what courses students take and when they take them), and tracking student academic performance overall and in particular courses.

Typical e-learning assessment methods are for instance: participation (% of total), taken part in discussion x times, written assignments, written home exam, active participation in discussions, project work, reports, portfolio, different types of diaries, and quiz-exams.

### 4.4 Tutoring and feedback on virtual courses

Giving oral feedback may be challenging on virtual course, although it is not impossible. Written feedback can also be more demanding on virtual courses than on traditional classroom courses, because there is no possibility to, in case needed, to orally specify feedback or instructions (Rouvinen, 2005). Further challenges on virtual courses are large groups. Naturally, large is a relative concept, what is a large group in one school, may be a small group in another. In some educational organizations courses may have 150 students, while other units have groups consisting of 35 students. One basic starting point, however,
is that every single teacher has the capacity for a limited number of participants on a course. Therefore it might be more fruitful to define the size of the course based on how much feedback and evaluation is needed on the course.

At the same time, it is fair to see and understand that the border for what is a large course (concerning the ability to give individual feedback and tutoring) is probably closer to 30 than to 100. The larger the course, the more difficult it becomes for the teacher to give tutoring and feedback of high quality to individual students. According to Lindblom-Ylänne, Repo, och Nevgi (2003) a small group is less than 15 students, a middle sized group is 15-25 and a large group consists of 25-50 students. A group that has more than 50 students is a mass group, and it is then called mass-teaching. According to the authors, mass-teaching involves special demands and challenges.

The question is, hence? How is it possible to give feedback to students on virtual courses where the size of the group clearly exceeds the number that enables individual feedback to the students?

Since tutoring is considered a process taking place throughout the course, from the time the student enrolls to the course, to the time the student has passed the course, information sharing is critical. Concerning information sharing it is true that IT tools makes it easier for the teacher to distribute material between the teacher and the student. IT tools also gives new ways of working with students, supporting two-way communication and interaction. Therefore the role of the teacher actually moves from the role of a teacher to the role of a tutor, that is, from the role of distributing ‘knowledge’ to the role of providing tools and methods for the students to create their own knowledge. The teacher is no longer an expert, but leads students to sources of information, creates good assignments, and makes the participants learn from each other.

When using IT tools in education, they way communication is done changes. Foremost, cooperation between not only student and teacher is made easier, but also between other teachers. Communication via email is easy, and since most have access to email, it is an effective communication channel. There are of course issues that need to be addressed, where too frequent use of email and a possible lowering of receiver attention is one of the
main issues that need to be thought through. However, e-mail is not the only tool available. Most teaching platforms today support a multitude of interaction and communication forums, such as chat boards, message boards, online communication etc. In other words, by utilizing IT the student and teacher gets access to more channels to communicate, such as video/audio conferences, chat boards, discussion forums on the internet, and of course e-mail.

IT tools will also make it easier for the teacher to distribute material and instructions, as well as other types of practical course information. Although this cannot be directly considered two way communication, it is a matter of fact that a lot of communication in the early stages of the course consists of the teacher communicating a fair amount of information from to the students. Since all necessary information and instructions can be collected and presented on a single place, for instance a web page, the information is easily available for the students. Another positive point is also that the same instructions and information can be used for several courses with small changes.

If IT tools are also used when students are providing feedback, the feedback can easily be stored and managed, and can be reused for later purposes. Feedback can also be used as a start of discussions and communication between teacher and student, and there is the possibility of having a dialogue that discusses various aspects of the course. If feedback can be given on for instance web based notice boards, the students and teachers can maintain a dialogue, and the students can also maintain anonymity of they so desire. Of course there is always the risk that anonymity will lead to some level of unnecessary and unjust comments, the advantages mostly outweighs the disadvantages.

Another option for tutoring and feedback during a virtual course is to re-consider the idea of when and how tutoring and feedback takes place during the course. This idea begins with the concept of viewing every course as a process, meaning that every course can be viewed to consist of 5 different phases;

![Figure 1. The planning process for virtual courses](image)
Traditionally, a large amount of feedback and tutoring is given in phase 4, that is, during the implementation process, meaning, when the course actually takes place. Phase 4 has been highlighted in the following table, where some of the activities taking place are pointed out.

<table>
<thead>
<tr>
<th>Planning</th>
<th>Production</th>
<th>Course start</th>
<th>Implementation</th>
<th>Ending</th>
</tr>
</thead>
<tbody>
<tr>
<td>Determine starting points for the course</td>
<td>Producing the course environment</td>
<td>Information and marketing</td>
<td>Initiate students</td>
<td>Registering achievements</td>
</tr>
<tr>
<td>Planning the learning process</td>
<td>Producing the material</td>
<td>Receiving registrations, acceptance to the course information</td>
<td>Studies</td>
<td>Evaluating the course</td>
</tr>
<tr>
<td>Choosing media and tools</td>
<td>Testing</td>
<td>Enrolling students on the virtual course</td>
<td>Tutoring students</td>
<td>Handling the course</td>
</tr>
<tr>
<td>Planning marketing and information</td>
<td>Testing facilities, equipment, programs, determine functionality</td>
<td>Evaluating learning</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Practical tutoring / feedback</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pedagogical and technical support</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 1. Course planning and activities (Vopla - Verkko-opetuksen laadunhallinta ja laatupalvelu, 2004)

In phase 4 the teacher works continuously with tutoring and feedback. Depending on the size of the course, it consists of a number of assignments. If a course for instance is 10 study points, there could be 8 assignments all together during a 16 week period. On a course with 80 participants it means roughly 10 minutes per student per feedback and assignment, plus roughly 15 minutes to give feedback. Some students of course make such good assignments that no further feedback is needed than to write that all evaluation criteria has been fulfilled. However, some students are in need of more feedback, especially if they have to complement the assignment. These students might need thorough feedback in order to improve their work. This means that the teacher might very well spend 30 minutes on giving feedback. This means that on a large course a single teacher will simply not have enough working time during a week in order to give feedback to all students. Because of a lack of time it is surely a reason why the only feedback students get is a grade.

There are some alternatives available to improve this situation, although it might not be available for all kinds of courses;

- group work, where only the group as a whole gets feedback
- feedback only to individuals or groups that need to complement an assignment
- offering some general comments, where groups or individuals can ask for feedback if they require it
- have some or a few stand phrases that can be copy pasted into the feedback
- self assessing test, so called quiz assignments with automated feedback on every question

Option four can be used quite successfully, since after a while the teacher usually knows what errors and good points students make for each assignment, and can prepare some standard feedback. In fact, quite a number of students in the end make similar assignments, mistakes, strengths and weaknesses.

This idea of preparing some feedback might be taken further. By being pre-emptive one can make assignments where, already during the planning phase, one prepares different alternatives and comments to different answer alternatives.

The question becomes; Are there some possible advantages from transferring some of the feedback given to the student to the production phase of the course? How could this be implemented?

<table>
<thead>
<tr>
<th>Planning</th>
<th>Production</th>
<th>Course start</th>
<th>Implementation</th>
<th>Ending</th>
</tr>
</thead>
<tbody>
<tr>
<td>Determine starting points for the course</td>
<td>Producing the course environment</td>
<td>Information and marketing</td>
<td>Initiate students</td>
<td>Registering achievements</td>
</tr>
<tr>
<td>Planning the learning process</td>
<td>Producing the material</td>
<td>Receiving registrations, acceptance to the course information</td>
<td>Studies</td>
<td>Evaluating the course</td>
</tr>
<tr>
<td>Choosing media and tools</td>
<td>Testing</td>
<td>Enrolling students on the virtual course</td>
<td>Tutoring students</td>
<td>Handling the course</td>
</tr>
<tr>
<td>Planning marketing and information</td>
<td>Testing</td>
<td>Testing the premises, equipment, program and ensuring that everything works</td>
<td>Evaluating learning</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Practical tutoring / feedback</td>
<td></td>
<td>Pedagogical and technical support</td>
</tr>
</tbody>
</table>

Table 2. Course planning and activities (Vopla - Verkko-opetuksen laadunhallinta ja laatupalvelu, 2004)

Fortunately, a virtual courses offer some possibilities and options concerning feedback during the planning phase of the course.
4.4.1 Tutoring as a part of the planning phase?

Quiz assignments (self grading assignments) are part of most teaching platforms today. Although they have their weaknesses, these kinds of assignments are good tools for large courses. Since they are self grading, teachers do not have to grade the assignment. It is also possible to write comments for all the questions, and these comments are shown after the student has passed the test. This means that the teacher plans a lot of the feedback when creating the quiz test, thus, providing feedback already during the planning phase of the course. This means that some of the tutoring and feedback is taking place not during the fourth phase but during the second phase. Because the quiz assignments only have a few alternatives for each question, it is possible to provide feedback for each alternative given.

Another way of working with feedback during the planning process is to make clear criteria for how each assignment is evaluated and graded. Each criterion comes with a set of instructions for how the students can work with each criterion, also giving examples. As students hand in their assignments, the feedback can in the form of pointing out which criterion has been fulfilled and which not. At the same time, a new set of instructions are opened up in the virtual platform, providing additional instructions for how to improve the assignment. This way, all of the criteria, the examples, and the extra material is produced during the planning phase of the course. This extra material also contains support material, support questions, and examples from previous courses from work done by students with good assignments.

For example, feedback to a student could look like this;

“You have successfully passed criteria 1, 2, 5 and 6. However, you need to work further with criteria 3 and 4. Further instructions can be found behind this link. You can also look at group x work from the previous course, where you can compare your own assignment to one which got the highest grade.”

Another way of moving tutoring and feedback to the planning phase is to thoroughly consider how the assignments are formulated, what examples there are, that evaluation criteria is clear, and so on. If assignments are well written, constructed, structured, and
exemplified, this becomes a part of the tutoring process, since students get a lot of help already from reading through the assignment.

<table>
<thead>
<tr>
<th>Planning</th>
<th>Production</th>
<th>Course start</th>
<th>Implementation</th>
<th>Ending</th>
</tr>
</thead>
<tbody>
<tr>
<td>Determine starting points for the course</td>
<td>Producing the course environment</td>
<td>Information and marketing</td>
<td>Initiate students</td>
<td>Registering achievements</td>
</tr>
<tr>
<td><strong>Planning the learning process</strong></td>
<td>Producing the material</td>
<td>Receiving registrations, acceptance to the course information</td>
<td>Studies</td>
<td>Evaluating the course</td>
</tr>
<tr>
<td>Choosing material and tools</td>
<td>Testing</td>
<td>Inskrivning av studenter på virtuella platser</td>
<td><strong>Tutoring students</strong></td>
<td>Handling the course</td>
</tr>
<tr>
<td>Planning marketing and information</td>
<td>Testing</td>
<td>Text, the facilities, equipment, program and ensuring that everything works</td>
<td>Evaluating learning</td>
<td></td>
</tr>
<tr>
<td>Types of assignments, clarifying criteria, exemplifying, specifying questions, support material, study questions</td>
<td>Practical tutoring / feedback</td>
<td>Pedagogical and technical support</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3 Overview of tutoring and feedback on a virtual course

By looking holistically on the tutoring and feedback process, and viewing tutoring as a total process, starting from enrolment and ending with graduation, a lot of the work that is mostly done during the implementation process can be carried through during the planning process.

5. Reflections about own virtual teaching

In relation to this paper, I would say that being a teacher and teaching starts with the teachers view about how knowledge is constructed. If the teacher has a positivistic view, he or she believes that knowledge is outside the learner; it can be measured and analyzed. If the teacher has a subjectivistic view he or she believes that knowledge is relative to the subject studied. This means that the only way to create knowledge and understanding about a subject is on the basis of the perspective of the participants. In other words, reality is shaped by the subjective experiences of the individual. In more practical terms it mans that instead of perceiving something as an object that needs to be measured and analyzed, the teacher sees the phenomenon itself as a subject, and its content need to be interpreted and understood. If a teacher has a subjective view, then a constructivist view on the students would be natural. The teacher would see the student as an active participant, and information is constructed by the participants’ experiences, ideas, statements and
perceptions. Learning is a collaborative, reflective and experiential process, and learners construct meaning and knowledge along the path interpreting reality.

I am strongly subjectivistic in my view about knowledge creation. For me it means that I am aware that everything that I teach is filtered through me, which means that I, at some point, have interpreted the knowledge that I have acquired. I also means that I know that the knowledge that I have acquired, for instance by reading an article, a book, a paper, has been filtered though the eyes of the author. In that sense, I have to be critical to what I read, to combine and compare with my earlier knowledge and experiences. I am also of the strong opinion that it is the students that construct their own knowledge; knowledge is not something that I ‘teach’ them. So, it is then very natural that my view on the learning situation will be geared strongly towards a constructivist setting.

This does of course not mean that I am a pure constructivist. There are of course other elements present. I have, for instance, believed that association is useful in a learning situation. That means associating new information to information already known, which will help the learner to grasp the concept quicker and more effectively. I also believe that the learners must themselves actively participate if they are to learn. This in turn is a cognitive approach to learning.

One central pedagogical base that I have, in order to enable tutoring on large courses, is that the students themselves are allowed and required to participate in the tutoring process, that is, that they are required to tutor each other. This idea also serves the purpose, besides offering better quality tutoring, of creating a sense of commonality on virtual courses. This can be a dilemma on many virtual courses, since the students never meet, and therefore never develop a sense of belongingness. Naturally, when students participate in the tutoring process, there need to be explicit and thorough directives and guidelines. These must also be available early on during the course. These instructions and guidelines need to be worked out before the start of the course, and therefore, become part of the planning process.

My main goal when planning a course is to activate the students. I focus on providing tools to students in order to help them to learn better, as well as to engage the learner,
instead of giving information to a passive learner. I am always trying to plan my teaching in such a way that the learner will be using a variety of material and tools. A great part of the learning situation evolves around group discussions, solving tasks, applying information and knowledge to different topics and tasks, using real life examples, etc. I have also moved away from written exams, because I don’t believe that there is active learning involved in reading and writing an exam. Partly because we all know, from our own experiences, that reading for an exam usually takes place one to two days before the exam, and when the exam is written, the students forget all about it. This does not promote an active evaluation of the material the student has read, and there is also no connection to earlier experiences or knowledge.

I also encourage interaction- and communication skills. I do this so that the students are given the ability to cope with interactive situations in working life. Because I am teaching business, the students will always be required in their working life to handle negotiations and communicate in a verbal and written way. Another important element is to develop the cooperation skills of the students. This is done by creating a lot of tasks that are group oriented and which the students can only solve by acting together, receiving an understanding for others; their thoughts, standpoints and their motives. They way to promote this is by having the students discuss a lot of the assignments in groups, and then also presenting their findings. They are also required to lead discussions about various topics, which means that they have to be able to try an asses the other students in order to come up with topics that will suite most of the students. Interaction is further emphasized because the students are typically not allowed to choose who they are going to do their assignments with. Instead they are grouped with people they are not familiar with, and therefore they have to be able also to form a group, to function as a group and to develop as a group. This demand is a direct result of the reality in business life, where a lot of work that is being done is conducted as projects, which means that new people meet, and have to work together, for a short time and with people who have maybe not met before.

Two other important elements in my planning process are motivation and challenge. My greatest task is to motivate the students. I can do this by applying different tools and methods in my teaching. Motivation also stems from offering challenges to the students. The main problem is how to asses and know how many challenges the student can handle?
The main risk is that if students are too much challenged in class, it can be exceedingly demanding for them, and they will lose interest. Students will also most likely lose interest if the level of challenge is too low.

Another way to motivate is to be sensitive, flexible, and willing to adjust lesson plans to accommodate such occasions. Therefore I typically have an evaluation session right at the middle of the course, where we can together with the students talk about the course so far, discuss possible problems and for instance, if necessary, adjust the schedule. This is something that the students always greatly appreciate. My planning teaching always involves time for the students to be able to discuss the content of the course, the methods, the tools. It also means that I am always available for the students when they need and open for ideas and suggestions.

6. Concluding discussion

Is teaching, and especially tutoring and feedback different on virtual courses than on traditional classroom courses? Does teaching on virtual courses require new pedagogical tools and considerations? My answer is that, yes, it is different, but, no, it does not require a new pedagogical approach. The same principles apply; the same or similar tools can be applied. There are also perhaps more tools available on virtual courses, although there need to be thorough consideration taken before applying any solution or tool. The question should rather be; Are virtual courses better than traditional courses? Should virtual courses be used instead of traditional classroom courses? For these questions I have to give an answer that is both yes and no. I believe that one have to consider what can be achieved on traditional courses and what can be achieved on virtual courses. Things that can be better or easier done on one or another course should be done so. And, a course does not have to be completely one or the other. As has been shown previously, there can be a mix of more traditional methods with more virtual methods.

I believe one interesting basic question that arises in a discussion like this is; what are you actually trying to promote with these new learning tools? Are young students encouraged to stay in their birthplaces, studying from home, and never leaving their home environments?
In a more traditional learning environment, students are typically required to move to another city to start their studies. This means leaving their home, which in my opinion should be compulsory for all young people. Moving to another city or region encourages change, independence and a better view on society. For one, there could be great cost saving from increasing the use of e-tools. At the same time, there is an increasing demand for universities to work more closely with the industry, especially in the areas of business and administration. Society is changing at an increasing pace. There are not only occurring changes in such areas as technology and innovations, but also social, cultural and economic changes are occurring at a faster pace. These areas used to be separate but are now being interwoven – what happens in one area often has consequences for another or the rest. Economic thinking has penetrated all levels of society, and thus needs to taken into consideration at all types of situations.

What is interesting is that those IT-tools that are ‘new’ to universities have been used extensively within business life for a long time. In many cases the universities are far behind in this development. Hence, I believe that adopting more IT-tools and e-tools will enable a greater exchange between the business life and the universities. These new e-tools could be used as a bridge between the university and the businesses. At the same time, I believe that there need to be also a slight change of focus in education for this cooperation to be fully fruitful. IT-tools should not just be used for the purpose of teaching; they should be part of a more comprehensive skills development program, where student becomes far more familiar with using various IT- and e-tools. The reason for this is of course that various firms and organizations are already using them, and students - future employees- need to be familiarized with them. At the same time, it also places some challenges for teachers, since they also need to be aware of the trends and tools used in business life. In other words, teachers also need to be students from time to time.

For the teacher this gives rise to great challenges. No more is the teacher required to pass on skills and knowledge, but increasingly to identify the skills that the citizens of the future will need. There will of course always be a need to foster basic skills in society, but these skills will increasingly be tied to specialized skills and professions.
In addition to identifying and educating young and old, teachers have to continue their own continuing professional development or in-service education and training. The basic truth is that the teacher has to be up to date with changes occurring in society in order to identify the needs of tomorrow’s citizens. This can be seen both as a positive or negative aspect of the teachers career. In earlier days the teacher had little need for professional development, and there were no sources of such. Nowadays the need is much greater, and also the teacher him or herself wants professional development, but this means that the teacher actually performs two tasks at the same time – developing self and developing other. How to combine this is a difficult question, and it is also difficult for the teacher to find the time needed to develop oneself.

Another change is also apparent, that is, the increasingly close connection between education, research and practical level. At many educational institutions private firms are big sponsors, and can therefore be considered to have an influence on the teaching situation. There is still a large difference in various parts of the world concerning the integration of these three areas. In Europe the division between the three is rather great, but in North America there is a close tie or link between research, education and business. This means that teachers must strive to understand their actions in various social contexts, such as scientific, pedagogical, technological, social, political, economic and cultural. The teacher needs to consider changes in working life, the development of society, especially the effects of internationalization, the increased flexibility of the statues that regulate school work. This means in practice that there is a increasing need for co-operation and networking between the teacher and many parties. Teachers have traditionally worked alone, but this is changing fast. The speed of these changes is increasing especially with the emergence of various IT-tools that enable communication between geographically separated actors. The changes to the learning environment are further promoted with the increased importance of information and communications technology. One really practical implication is that communication and study is becoming distance-independent.

In practical terms I would say that the future teacher has to take a learning approach that is problem based and investigative. Learning have to take place in a simulated or real-life situation, which equals the actual context where the knowledge will be applied. Learning will also be based on co-operative and collaborative principles and takes place in groups,
and the learning environment is based on the learner’s active role and commitment. Teaching and learning will clearly be based on the learners’ active construction process and on the higher-level knowledge structures.

During the last two or so years there has been a lot of emphasis on web-based teaching methods in many educational institutions. A lot of resources have been put into developing this new area in teaching, and the goal has been to make teachers aware of modern technology and to utilize it in teaching. Still, despite the advantages of making possible more close exchange and collaboration between business life and the university, my experience is that relatively few teachers are willing to further educate themselves in the use of new IT-tools and e-education. Not all teachers are embracing the new technologies, rather is seems that perhaps younger teachers are using these new tools and methods. It means therefore that these new technologies will not become available for all students.

It also seems that the universities are the last to embrace changes and new learning tools. The level of pedagogical formal training for vocational teachers and trainers varies a great deal. In polytechnics and in vocational schools a formal degree in pedagogy is required, but in other levels (universities, vocational training centers, working life organizations) there are no such regulations, and thus the pedagogical skills of the teachers and trainers are more heterogeneous.

Because web-based technologies have the possibility of connecting several educational institutions together, also internationally, it would be very important that the approach to new technologies is not an isolated event, but rather implemented as a conscious effort in all institutions. This means that all teachers have to be knowledgeable is this new technologies. Finally, as long as these new technologies seem to be considered a solutions to a lot of problems, it is likely that many will be disappointed when using them for the first time. Many experiments with new technologies lack pedagogical insight, and therefore produce technologically advanced yet pedagogically less innovative outcomes. It is also my opinion that the increasing mobility of individuals is a challenge for teachers. Country and culture borders are at a high pace blurring or eroding, and new cultural influences and trends appear at an increasing rate in every society. There also seems to be
a widening gap between teachers and young adults, especially when it comes to the adaptation of new technologies. Many teachers find new technologies foreign and sometimes intimidating, while young adult have been brought up in the IT-age.

References

Bryman, A. Samhällsvetenskapliga metoder, Berlings Skogs: Trelleborg, Sweden. 2002
Dewey, J. How we think, 1910.

@aduline, http://www.ut.ee/e-ylikool/puzzle/puzzle_fi/secure/?show=2

http://www.helsinki.fi/vopla/, April, 2006