

# E-learning and Its Hidden Pedagogical Challenges for a Teacher

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## 1. Introduction

**E-universities** and online courses are gaining popularity all over the world. Fifty years ago people believed that going to school would be over at the age of 25, and then people would go to work and stay in the same place of work 35-40 years. Today we speak more and more often about life-long learning. Flexibility is important in our modern, fast changing time and society. The youth today does not take interest in listening to passive lectures. They appreciate courses, which support interactivity and realize combined teaching methods.

**E-learning** is the learning process mediated through Information and Communication Technologies (ICT) and which takes place both in classrooms and outside formal lessons. It will take advantage of ICT tools (computers, projectors, etc), the Internet, digital learning material and internet-based environments to raise the quality and effect of teaching, to add to the chances of getting information and services as well as to increase the flexibility of teaching methods and the collaboration of students. An online course is carried out via Internet or through ICT tools either as a part-time or a full-time course.

Information society is characterized by offering conditions which make it possible for people in hectic work and life to study. They can choose the time and place of doing their assignments by using ICT tools. Above all, the importance that ICT has in the process and the added value that e-learning can offer should be emphasized. Here it is referred to intercultural education, which enables cooperation between statal as well as private enterprises, and which is extends the borders of one country. The latter, in its turn, calls for the challenge for elaboration of potential learning environments. (Carneiro, Tarin, Jokisalo, 2008).

## 2. The aim and method of this study

**The aim** of this study is to examine the experiences of higher education (HE) teachers in Estonia and Finland about online courses. The author of the article developed the idea to compare connections of cultures of those two countries of the fact that, although the neighboring states Finland and Estonia have had different political directions, they still were/are in the same cultural room. Both states have quite much in common in their educational systems, including the traditions of e-learning in the system of higher education in both countries (both belonging to the European Union ). Therefore, it would be possible to develop a common dialogue about educational processes and elaborate learning processes adequate to the necessities of intercultural citizenship.

The Estonian e-learning strategy for 2007-2012 states that e-learning methods and ICT tools are an essential and integral part in higher education and vocational teaching. To attain it the following fields and areas of action must be taken into account (EITSA, 2006):

- 1) Education, 2) Infra structure, 3) Analyzing and development projects, 4) Support systems for e-learning, 5) Constructing online courses and curricula, 6) Internal (Estonia) and international cooperation, 7) Popularization of e-learning.

We should have teachers who are capable of teaching in the new way and we focusing cooperation .

Estonian universities use three different learning management systems: commercial environment **WebCT**<sup>1</sup>, free software learning environment **IVA**<sup>2</sup> which has been created in Tallinn University and **Moodle**<sup>3</sup>, free software learning environment used in the consortium of both the Estonian e-university and Estonian e-university of applied sciences (e-open strategy).

Finnish universities use two same learning management systems ( WebCT and Moodle) in higher educations as Estonian universities. *Thus two neighboring country can in the future cooperation in eLearning and sharing their own expediencies*

**The research method** is inquiry research and qualitative content analysis. The sample was chosen to include both experienced and inexperienced e-learning teachers. The research material was collected in academic year 2007/2008 by interviewing target persons or through open-ended questions in questionnaires. The questionnaire is attached to this paper (Attachment 1).

Responses comprise 2 different groups: *Experienced*: 5 EST and 5 FIN lecturer (Figure 1), 26-63 year - *Inexperienced*: 10 e-learning students (Figure 2), 23-43 year

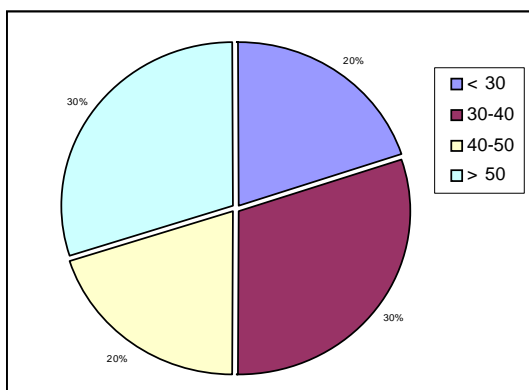


Figure 1 Finnish and Estonia lecturers ages

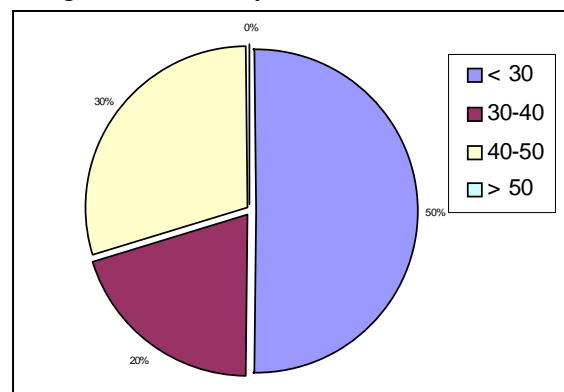


Figure 2 Estonia students' ages

The answers were analyzed using qualitative content analysis method. The purpose was to find out similarities and varieties of the respondents' expressed experiences and conceptions.

Attention was paid to the pedagogical aspects of the e- environments by formulating research questions in the following way:

How does HE teachers define learning, teaching methods, and problem solving in e-learning.

New possibilities in **accessing**, **copying** and **publishing** information have brought forth differences in understanding and acceptance of long-standing evidences in various cultures.

Hidden challenges are emerging as a result of both multiculturalism and the development of digital information and knowledge, and the propagation of their use in all segments of activities (Belisle, 2007, 12). Three critical issues, what we call hidden challenges, can be defined:

<sup>1</sup> <http://webct.com>

<sup>2</sup> <http://www.htk.tlu.ee/iva>

<sup>3</sup> <http://webct.com>

- The copy/paste symptom
- The collaborative learning incitement and
- The evaluation mirage.

Those issues coincide with the second and third research questions of this article.

With research questions we try to open up the teaching process in online environments, where there are many hidden pedagogical challenges:

- Is learning in online environment independent or not? For example, how does a teacher share tasks at a course and what kind of methods does she use?
- Do students construct their own knowledge independently or not? For example, do students have new ideas or do they have possibilities to use plagiarism or do they do homework for other students?
- How and when to collect feedback, is it constructive or inadequate?

### 3. Theoretical background

The following chapter will describe a few pedagogical theories to build the framework for meaningful learning via ICT.

#### 3.1 Cognitive perspective of learning

Cognitive learning theories state that the basic motivation of learning is the learner's inner interest and his/ her activity due to the motivation. As the result of this inner action new information will be connected to the earlier data. Cognitive approaches see learning as a process, not only as adopting information. (Ausubel 1978, Bruner 1983, Gagne 1985.)

*Ausubel* states that learning is understanding of information, and it is revealed when the learner explains what he/ she has learnt. The prerequisite of successful learning is that the teacher takes into account the learner's starting level and earlier knowledge. For that reason it is important to structure the matter logically and stress the basic principles and contents. (Ausubel 1978.)

*Bruner's* work on categorization or the forming of concepts (involving three stages: enactive, iconic, symbolic) provides a possible set of answers to how the learner derives information from the environment. Bruner argued that it is the 'structure' of subjects that should be taught. The main object of learning is not learning facts or remembering them. The purpose is to get a conception of the structure of science and the relationship between its parts. (Bruner 1990). For instance role plays and structuring things belong to this kind of learning.

*Gagne* (1985) speaks about the three principal means of acquiring knowledge - observation of nature, reflection and experimentation. Observation collects facts, reflection combines them and experimentation verifies the results of that combination. Learning is a sequence of gaining attention, getting information, recalling prior information, presenting information, providing guidance, eliciting performance, providing feedback, assessing performance and enhancing retention and transfer (Gagne 1985.) Cognitive theories emphasize active mental processing on the part of the learner. However, knowledge is still viewed as given just as is understood in the behaviorist school.

### **3.2 Constructivist View of Education**

According to constructivist theories learning is individual and personal. This means that a person constructs, deconstructs and reflects on his/her personal understanding and knowledge based on his/her own experiences. Jean Piaget (1988) also explains that people create knowledge themselves gathering from their experiences. They create actively simultaneous, simple and compatible systems. Learning is thus an active and reflective process.

Discovery-based learning alone is inefficient if students are clueless (or just copy answers from a neighbor) using a completely unguided approach. On the other hand, guided instruction advocates should not lose sight of the fact that the ultimate goal of almost all learning should be its application to new situations or solution of new problems, or at least a fresh perspective on the present or the past (Eide et al. 2006, Eide et al. 2007).

#### **3.3. Constructivist Principles in E-learning**

Eero Pantzar (2003, 32-33) lists five aspects of learning, which should be taken into account, if a teacher follows constructivist principles in e-learning courses:

1. Contextual learning

The contents of learning should be connected to the life world of the learner.

2. Possibility to limit information

The student should not be given more information than he/ she is able to receive.

3. Information about different beliefs

The students beliefs may be different from those of the group or from the result of collaboration.

4. Learning is connected to culture

In organizing e-learning the cultural factors of the learning environment must be taken into account.

5. Dynamic conception of learning

Information changes and is reformed all the time. During the learning process new versions of the one and same thing must be offered. The students should develop their metacognitive skills to be able to choose and direct their information acquisition and understanding during the process of learning.

### **3.4 Socio-cognitive View of Education**

A major idea in socio-constructivist approach is that learning is affected by social interaction. Discussions, conversations, explanations, listening - all these are ways we learn by interacting with others. Encouraging social interaction among students is not common in classrooms - even in the classrooms of excellent teachers. If social intercourse is, indeed, an essential part of learning, our students need more opportunities for discussion to develop their understanding (Perkins, 1993).

### **3.5 Socio-cultural View of Education**

Socio-cultural theory describes the process of learning as a social process and rise of human intelligence in society or culture. The founder of this conception is Lev Vygotsky. The socio-cultural framework appears to give appropriate tools for observing and conceptualizing the emerging forms of practices and work of our times, such as

collaborative work in groups, distributed expertise and networked activities. Individual thinking is mediated through cultural symbol systems and artifacts we use. (Brown et al. 1989, Lave 1988, Lave et al. 1991.)

### **3.6 Cooperative and Collaborative Learning**

In cooperative learning (Johnson 1989, Johnson et al. 1994, Slavin 1995) students work together to accomplish a learning task. The division of labour among the participants accomplishes cooperation; each person is responsible for a portion of the problem-solving task.

Collaborative learning, on the other hand, is “a coordinated, synchronous activity that is the result of a continued attempt to construct and maintain a shared conception of a problem.” (Roschelle et al.1995, 70).

Collaborative learning develops skills of negotiation, assertiveness and listening (Dillenborg, 1999). It differs from cooperative learning in one key way. Where the output of cooperative learning is the synthesis of work done by individuals, collaborative learning has at its center the notion of joint learning. The participants work together on a task and are jointly responsible for the strategies employed in achieving a satisfactory outcome (Johnson et al. 1998.)

## **4. Description of the Learning Strategies and Methods in Online Courses**

This chapter will briefly describe the online course methods and strategy used by a teacher. Some of the descriptions reveal hidden pedagogical challenges connected to online teaching.

For example, in autumn 2005 one of the author’s colleagues started her first e-course. In the first lecture the students could choose whether they would be present in every lecture or if they would follow the course in their e-learning environment. In the beginning the students were very eager to choose e-learning but soon they realized that e-learning is not easier than studying in the classroom. Only those students who had difficulties in coming to the lectures or who wanted to do the tasks at their own speed finally remained in the e-course. As to the hidden pedagogical challenges, the copy/paste method was excluded, for before reading the material on a certain topic the students had to give their own opinion and comment on others’ opinions on what he/she knew. As can be seen, the lecturer consciously relied on cognitive learning theory represented by Ausubel.

After that the students had to read the new material and reflect on what they had read, that is, to structure the idea. Again the lecturer relied on a cognitive learning strategy which Bruner represents this time. Further on, there was constructing new knowledge, when the lecturer asked the students to participate in a discussion and explain what new they had learnt. In other words, the lecturer relied on several theories mentioned above: constructivist, socio-cognitive and collective learning strategies.

Although giving personal opinions eliminated the possibility of using copy/paste method, there were still the issues of collaborative learning incitement and evaluation mirage. When the students were given an opportunity to form the discussion groups by themselves and to share tasks, the results differed greatly between the groups, and the lecturer found it difficult to evaluate them. At the same time in their feedback the students saw only the positive side and said that they had worked much more and used more time than in classroom learning. In general, organizing group-work in e-learning and supervising it is still a challenge for a lecturer because of students’ different schedules and uneven contributions.

Many taxonomies of learning strategies have been proposed (e.g. Weinstein et al. 1986, Pintrich 1988). One approach is to characterize learning strategies as relating to cognition, metacognition or resource management. Cognitive strategies help the learner to codify new material and to structure knowledge. Metacognitive strategies help the learner to plan, regulate, verify and shape his/her cognitive processes. Resource management strategies help the learner to control available resources – such as time, effort and outside help – in order to cope with the task. (Ruohotie 2002, 41-41.)

Tina Joy Pitt (1997) has identified ten instructional strategies, which have been effectively used in the traditional classroom and can likewise be used in the online learning environment. These strategies are:

- Learning contracts
- Lecture format
- Discussion format
- Self-directed learning
- Mentorship
- Small group work
- Project method
- Case study
- Forum
- Putting it all together

This study will discuss later on which strategy uses appeared in the respondents' answers. Sally Brown and Phil Race (2002) have studied the future of online learning. They describe six cases and analyse their possible development. For example, according to 3 cases and 3 questions, they have found out what touches teachers and students in learning. This is the direction of development examined from the viewpoints of the following questions: What might make it happen? What might stop it? (Table 1):

Table 1. Future scenarios of online learning. (Shaped according to Brown et al. 1989)

<b>Development</b>	<b>What might make it happen?</b>	<b>What might stop it?</b>
<b>Plagiarism</b> will be entirely eliminated from online learning.	The requirement that all work must be submitted digitally and stored indefinitely so that new submissions can be checked against old. The further development of computer-based plagiarism detection services like <i>Turnitin</i> will reveal plagiarism. Increasing digitalisation of journals and other source materials.	Very determined plagiarists, including those who use ghostwriters and impersonation will appear.
<b>Students</b> will work <b>together</b> in cooperative learning teams without any necessity for teacher intervention.	The development of really excellent independent learning guides, including training not only in the use of content material, but also in effective peer-support and learning.	Student and staff reluctance.

All <b>teaching</b> at post-compulsory level, <b>everywhere</b> in the world, would be in the medium of the English (American) language.	Increasing use of English as a <i>lingua-franca</i> . Developments by large international publishers, with high market ambitions. The colonization of post-compulsory education by the English-speaking world.	Strong-minded national groups resisting this kind of linguistic colonization of the intellectual world.
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Thus all hidden pedagogical challenges of a teacher will not disappear even in the future. How do the teachers of today see the challenges? The present research will offer one point of view on it.

## 5. Results

The answers in interviews and questionnaires when analyzed revealed four themes, which exposed if teachers had sufficient competence in e-learning and if they were able to respond to hidden challenges:

:

- Balance between individual study and collaboration
- Support to creativity and new ideas contra plagiarism
- Interactive discussions and active independent work
- Student reflection and feedback on learning.

The study themes and research questions were expected to reveal something about the teachers' reflective practice, the targets of interest and other points of view which do not grow significant in contact teaching, but will be meaningful in e-learning. Other points of interest connected to e-learning were, for instance, the teachers' conceptions of their personal identity and professionalism, their ability to apply new teaching methods, their preparedness to use e-learning environments, their ability to motivate learners and find innovative solutions. All these aspects as well as the teachers' communicative and interactive competence were examined availing of the teachers' self-assessment.

### 5.1 Balance between individual study and collaboration.

Table 2 Frequency of the e-courses task

Respondents	Individual study	Collaboration
Estonian teachers	5	1
Estonian lecturers	8	1-2
Finnish lecturers	2	1-2

Both the Estonian teachers and lecturers were used to give more individual work in e-learning than the Finnish lecturers (Table 2).

Teachers' consensus for collaboration was surprising. All respondents thought that it was enough to have 1-2 group-work sessions in an e-learning course (Figure 3).

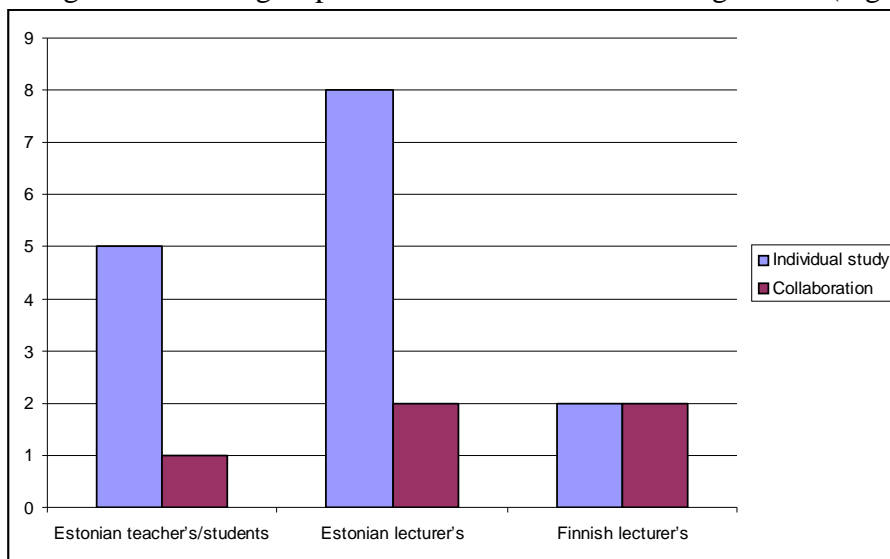


Figure 3 Frequency of the e-courses task

Although they saw positive aspects in group-work (easier to check, ability to work and to take other people in consideration will increase, the effect of co-studying) they expressed negative aspects as well (time consuming, lack of interaction with the whole group, meager efficiency). Thus, to encourage collective learning in e-learning, teachers need to find more positive aspects or means that would overthrow the arguments presented here.

The following quotations illustrate the teachers' conceptions:

- Individual study

Estonian Teacher: ...“4-5 exercises in a Semester, where 1 can be more substantial than others.”

Estonian Lecturer: ...“Reading is essential – tens of articles, numerous books – all of which should somehow be represented in the study portfolio. In addition observations etc + participation in cooperative project- thus (without reading) about 5-8 different tasks in total”.

Finnish Lecturer: ... “ Depends on the period of learning and assortment of exercises, maybe 1 or 2 tasks.”

- Collaborative work

Estonian Teacher...In case of distance learning I would prefer one collaborative task, since some of the participants have more time than others and this affects their contribution to the group work ...

**Estonian Lecturer: ...2-3 bigger group works, which derived from Problem Based Learning (PBL)...**

Finnish Lecturer: ...2 works, 1 is peer-to peer work, they can write about their own School experiences and analyze each others work; the other is titled: What I learnt in 10 contact days? The peer student analyzes, evaluates and gives feedback on it...

## 5.2 Support to creativity and new ideas contra plagiarism



Finnish teachers show students how their results are exploitable in Real Life or add to their motivation through their best experiences in forums. Estonian lecturers and teachers develop creativity in eLearning by asking the students to write essays and discuss the ideas that they have found out in the study material themselves. Creativity was important to all respondents, and many opportunities were given to encourage it.

<b>Respondents</b>	<b>Creativity and new ideas</b>	<b>Motivation</b>	<b>Plagiarism (fosters)</b>	<b>Avoiding plagiarism</b>
Estonian teachers	<ul style="list-style-type: none"> <li>• Raising interest</li> <li>• Giving one's own opinion, writing an essay</li> <li>• Open tasks</li> <li>• Creative tasks (drawings)</li> <li>• Originality + technological possibilities</li> <li>• Making a certain article</li> </ul>	<ul style="list-style-type: none"> <li>• Studies for himself</li> <li>• Trusts the student</li> <li>• Communication (msn, Gmail)</li> <li>• Intriguing question</li> <li>• Different tasks and the result of the mosaic picture at the end</li> </ul>	<ul style="list-style-type: none"> <li>• Superficial task without an aim</li> <li>• Student's lack of time</li> <li>• Finding an easier way</li> </ul>	<ul style="list-style-type: none"> <li>• Discovers with the help of Google</li> <li>• Referring to sources</li> <li>• Reducing the grade</li> </ul>
<b>Estonian lecturers</b>	<ul style="list-style-type: none"> <li>• Scientific work is creative by nature</li> <li>• Interviewing companions</li> <li>• Creative tasks</li> </ul>	<ul style="list-style-type: none"> <li>• Not giving the questions for revision</li> <li>• The course mates will evaluate creative tasks as well</li> </ul>	<ul style="list-style-type: none"> <li>• Do not assume cheating as the tasks are too capacious</li> <li>• Cheating will come out on the final test</li> </ul>	<ul style="list-style-type: none"> <li>• Warn that cheating will come out on final test</li> <li>• The task should be discussed</li> </ul>
<b>Finnish lecturers</b>	<ul style="list-style-type: none"> <li>• Active participation in discussions, their own opinions</li> <li>• Sharing one's own experience</li> <li>• Kahvila (Cafe)-self-directing students</li> </ul>	<ul style="list-style-type: none"> <li>• It is applicable in everyday work</li> </ul>	<ul style="list-style-type: none"> <li>• Using computer-based plagiarism detection services like <i>Turnitin</i></li> </ul>	<ul style="list-style-type: none"> <li>• Informing about the existence of a given programmer</li> <li>• Referring to the sources</li> </ul>

### 5.3 Student reflection and feedback on learning.

Student reflection is so meaningful, because then the teachers see not only their own side of learning but also have another perspective.

The latter will notify the teacher if the course was a success or not, if the students acquired anything and if the strategies and methods chosen by the teacher fulfilled the objectives set at the beginning of the course. Estonian lecturers and teachers claimed that they did not run e-courses or did not have pure online courses, which also explains why the importance of feedback was not emphasized. Contrary to the Estonian experience, the Finnish colleagues valued e-course feedback, stressing that it was essential in enhancing the quality of the course.

If the student did not answer the feedback questions or gave superficial responses, it was not considered to be only the fault of the person running the course; other factors had to be

regarded as well. However, one of the hidden pedagogical challenges is still the organizational skills of the teacher or lecturer who runs the course. Which motivational measures were exploited, if the students were expected to self-reflect on their activities during the course, how was feedback collected from the students, if the course was prepared well enough, etc?

#### 5.4 Conclusion

The future development of e-learning and the constant growth of technological support gives hope that the popularity of e-learning at universities will gradually increase. However, many teachers and lecturers will have to face the hidden pedagogical challenges listed above.

Although the organization of e-learning has been rather resource- and time-consuming for both the student and the teacher, it still provides an opportunity to be a member of a certain social community and share a greater amount of knowledge and experience.

In conclusion, it should be noted that due to the globalization of society, the process of learning is becoming more flexible, colorful and includes complex concepts of learning. Hence, the current topic offers numerous possibilities for further research.

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Attacment 1

### ***Questions***

1. How many online- courses do you teach per year and what kind of network environment do you use?
2. How many students do you generally have in your courses approximately?
3. How many individual assignments do you give to students in your courses approximately?
4. How can you find out that the students have done their assignments independently?
5. Are there any group-work activities in your online-courses? How many approximately?
6. How can you find out if all the group members have shared responsibilities and commitments equally?
7. How can you provide enough opportunities for your students to improve their creative skills in your online- courses?
8. What indicators do you monitor in order to determine if your course has been successful?
9. What indicators tell you that your course has not been successful?
10. What kind of feedback have your students given to you about their learning/development?
11. What kind of feedback have you received or asked for in your online-courses?