

# Needs analysis of Estonian E-University

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Date: May, 2004

## Introduction

On the latest years, there has been more and more stressed a need to have more cooperation and collaboration in the society. These are keywords for success in different settings. Yet there is a gap between ideal and reality. As well we can follow this gap in education. There have been long discussions about a need for collaboration, but as is, it has remained.

The period of more serious collaboration between Estonian Universities started with advent of ideas about modern distance education. In 1993 started a first collaborative distance education project FEUCODE. Yearly arranged distance education expert seminars, PHARE Multi-Country Project for Distance Education “Developing regional distance education centres”, creation of the Estonian Distance Education Union, are some of the main road signs in development of distance education and e-learning.

With the establishment of Estonian E-University, new phase in collaboration between Estonian universities began. But instead of distance education, e-learning became a keyword. Due to rapid developments of ICT on recent years, computers and internet became part of not only distance education, but as well part of ordinary, face-to-face education. Slowly the boundaries between stationary and distance education became to disappear. To step to the next stage of quality in e-learning, more finances and investments are needed. There has been a big favour of establishment of Estonian E-University Consortium and Socrates-Minerva Project. To set priorities and develop plans for further investments, deeper research and analysis in following areas of e-learning, are needed:

- Accessibility of e-learning; exchange of study materials and courses between universities,
- Staff training,
- Reaching different target groups,
- Quality assurance and accreditation,
- Establishment of thematic networks.

On each area, there should be analysed following questions:

- Support, training and infrastructure, needed by university staff,
- Strategic priorities by partner universities, connected with e-learning.
- Required supplementary agreements and regulations.
- Situation of e-learning infrastructure and plans/needs for development (incl. database, standards, software etc.)
- Financial questions.

Present research is concentrating to descriptive needs analysis solely in first three areas. All respondents were belonging to Estonian e-University partner institutions' staff. At the same time, e-University is conducting a comparative analysis of learning management systems; preparations have begun to conduct an analysis of database design. As a result, this should

give answers for required software and infrastructure. On a daily basis a special workgroup at the Consortium is dealing with juridical and agreement questions. Several workgroups at Minerva project are dealing with the analysis of needs and experiences in different areas of e-learning around the world (and especially in Europe).

## **1. Objectives of the survey**

There has been set following objectives for the survey:

- A. Ascertain willingness and readiness for e-learning, expectations for support systems (both practical and technical aspects) and further training needs.
- B. Assessment to existing support-systems and complementary training possibilities.
- C. Gathering initial data for developing institutional e-learning vision and strategy.

For every objective, following sub-objectives were specified:

### A. Using ICT

- A.1. ICT using intensity
- A.2. Aims of using ICT
- A.3. Self-evaluation of ICT skills

### B. Readiness and preparedness to use e-learning

- B.1. Attitudes to e-learning
- B.2. Self-evaluation of e-learning competences
- B.3. Learning and teaching concepts
- B.4. E-learning experiences

### C. Evaluation of support systems and institutional strategy

- C.1. Expectation to support systems and complementary training
- C.2. Satisfaction with present ICT and e-learning support systems and pervaded training

### D. Attitudes, expectations, predictions to institutional e-learning strategy

## **2. Analysis and consequences**

### **2.1. Methods**

The empirical data of present analysis was gathered at the end of spring-term, in May-June at 2003. In development of questionnaire, two similar surveys were analyzed, for possible future comparisons:

- Questionnaire by Betty Collis: "Future scenarios for the use of ICT in higher education: an international comparative study" (2002). International comparative project by nine countries. <http://www.bsk.utwente.nl/cheps/ictsurvey>

- Questionnaire by Socrates/Grundtvig project: “Tutoring Adults Online” (training needs of e-learning tutors) (2002)

As the result, following indicators are comparable: B2 and B4 are conforming to questionnaire by Aduline project; C8 is corresponding to the questionnaire by Collis.

Questionnaire was developed in a web-based format, on eFormular application (<http://www.eformular.com/reelyka/kysitluskevad2003.html>).

There were 183 questions in questionnaire, divided into 4 sections:

- Background information (incl. indicating everyday use of computers, self-evaluation for IT skills)
- Readiness and willingness to use e-learning: experiences, competences (both pedagogical and technical), attitudes, pedagogical concepts of learning and teaching.
- Evaluation of existing e-learning support system and training possibilities.
- E-learning policy (judging current situation, problems, needs)

All data, gathered from the survey, were analysed by using OpenOffice Calc and MS Excel software.

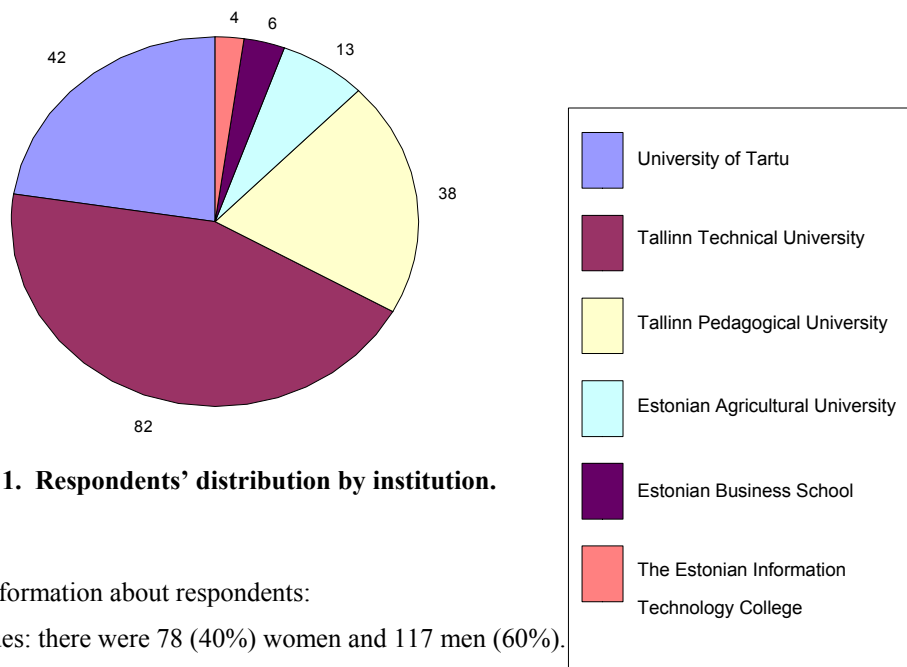
Results in Estonian are available at Estonian E-University’s home page: <http://www.e-uni.ee>

## **2.2. Setting a sample**

The initial idea was to conduct a survey on a method of random sampling among teachers from Estonian E-University’s member institution. The rate was set up to be 20% of all institution’s fulltime teachers. Because of a number of reasons, the method was changed:

- For example in Tallinn Technical University, the questionnaire was sent to all teachers.
- Other institutions tried to form a random sample, but met many obstacles. It was not possible to get a full list of teachers with e-mail addresses included. If it was not possible to get in contact with a person, without an e-mail address (it was called by phone to the department and asked from assistant), then another teacher from the same department was chosen (on a principle randomize).
- Because of a different sample forming methods, the respondent rate is quite unequal among partner institution. It has to be stressed, that sample forming could have been affected reliability and validity.

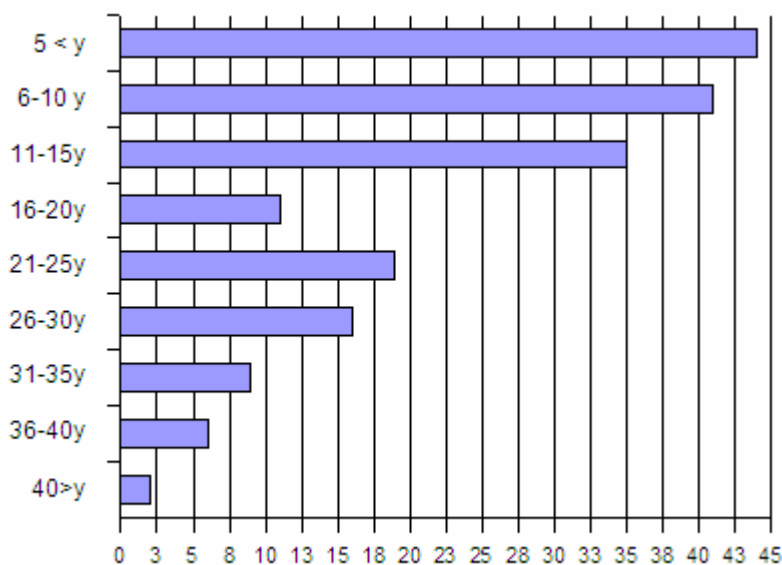
All together there were 195 respondents from 6 partner institution:



**Figure 1. Respondents' distribution by institution.**

General statistical information about respondents:

- Gender issues: there were 78 (40%) women and 117 men (60%).
- Academic background:
  - 76 respondents had *PhD, doctoral or according academic degree*; 66 had *master degree*; 11 had *bachelor degree*; 19 respondent marked academic level with *diploma* and 23 selected choice *other*.
  - 40 respondents is working as a *professor*, 43 as a *assistant professor*, 98 as a *lecturer, assistant or teacher*.
- Academic domains: most represented was Technical Sciences (65 respondents). Followed Art Sciences (40 respondents) and Social Sciences (34 respondents)
- Working experiences on academic level are illustrated below, on Figure 2.



**Figure 2. Working experiences on academic level.**

### 3. ICT using performance, experiences, competences

#### 3.1. Available software

In this section respondent's experiences and competences of using ICT were analyzed.

It was asked, how often and for what aims respondents are using different kinds of software.

Most of respondents (96%) are using *text editing software* (ex. MS Word) *on a daily basis*. 6 respondents (3%) are using text editing software *once in a week* and 1 respondent *seldom than once in a month*.

Similar performance pattern is with *web-browser*. 94% of respondents are using web-browser *one or more times in a day*. Only one respondent said that *does not use the web-browser at all*.

Similar pattern is about *using e-mail*. 96 % of respondents are reading e-mail *at least once in a day*. *Once in a week* is reading e-mail one respondent; and one respondent indicated, as reading e-mail *seldom, than once in a month*.

Because of institution's interest, it was asked, *which providers e-mail addresses respondents are using*. It is very often, that with institution's e-mail username and password there are several services available at the institution, and in institution's point of view, it is very advisable, if staff is using official e-mail address.

85% of respondents are using institutional e-mail addresses. Others are using some other provider's e-mail addresses/services (ex. services provided by Estonian telephone company Elion). Only one respondent indicated, that he/she is using shared address (he/she is sharing e-mail address with his/her friends, co-workers or family).

As a conclusion, it could be said, that computers in most cases are used rather often. Mostly it is used as a tool for text editing, tool for information retrieval from the internet or as a tool for e-mail exchange. Computers are used less for calculations with spreadsheet software (ex. MS Excel), where all responses divided rather equally on a 5-scale rating, beginning with option *several times in a day* till *do not use at all*.

Usage frequency for web-based learning management systems (ex. LearnLoop, WebCT), data analysis (ex SPSS) and content management (ex Postipoiss) differs from previously mentioned field of application quite a lot. For example, usage frequency of a web-based learning management system (ex. LearnLoop, WebCT) is illustrated on a Figure 3 below.

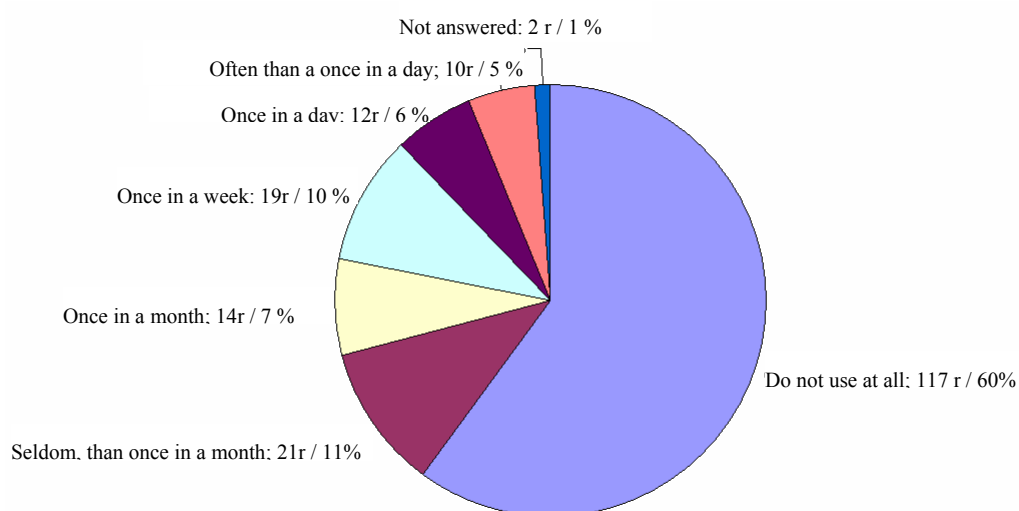


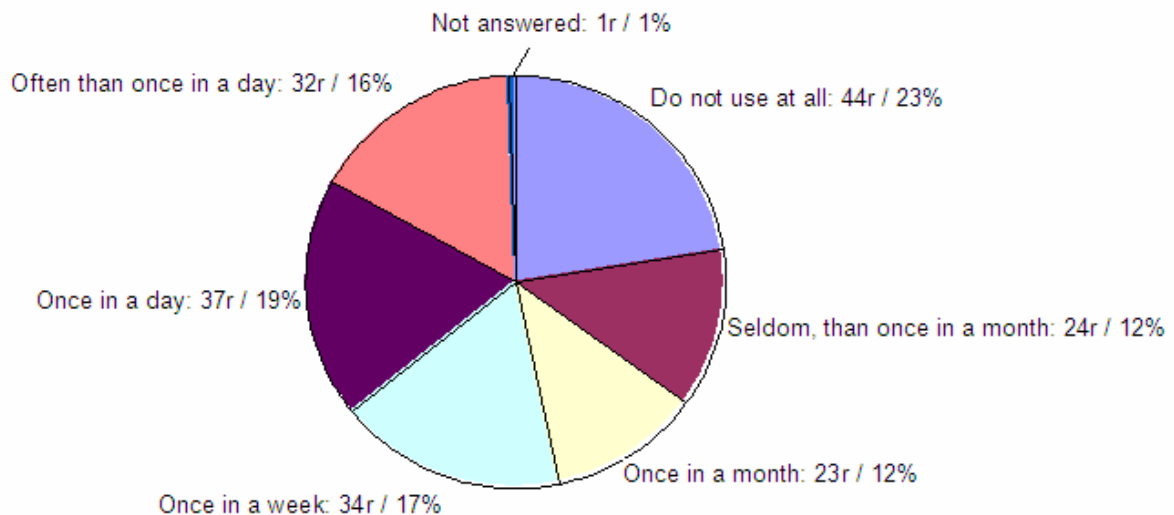
Figure 3. Respondents' distribution by frequency of using web-based learning management system.

On figure, we can see that 60% of respondents (117 people) are not using web-based learning management system at all. On a daily basis (*at least once in a day*) are using it 22 respondents (11%) and *once in a week* are using it 19 respondents (10%). It makes all together 41 respondents (21%), who are using web-based learning management systems often. It can be rated as a rather good result, as taking to consideration, that e-learning is not so spread yet. Therefore it makes sense, to investigate deeper this group of users. It will be done in a next section; there it will be analysed e-learning experiences and competences.

Usage frequency for data analysis (ex. SPSS) and for content management system (ex. PostiPoiss) has the lowest rates of all stated software domains.

105 respondents (53%) indicated that they are not using data analysis software at all; 34 respondents (17%) are using it seldom than once in a month. Similar pattern has a content management using frequency. 126 respondents (64%) are not using content management at all and 15 respondents (8%) are using it seldom than once in a month. Actually it is not very surprising result, as the indicated software is a rather specific one and its usage depends directly on the job and tasks. For example, account at the Postipoiss (and access to confidential documents) is given only by the institution's administrative staff.

Next section asked about usage of professional application software. As it differs according to a profession, it was not specified by possible responses/choices. Responses are distributed quite equally according to profession. Presumptive frequency distribution is illustrated on Figure 4 below.



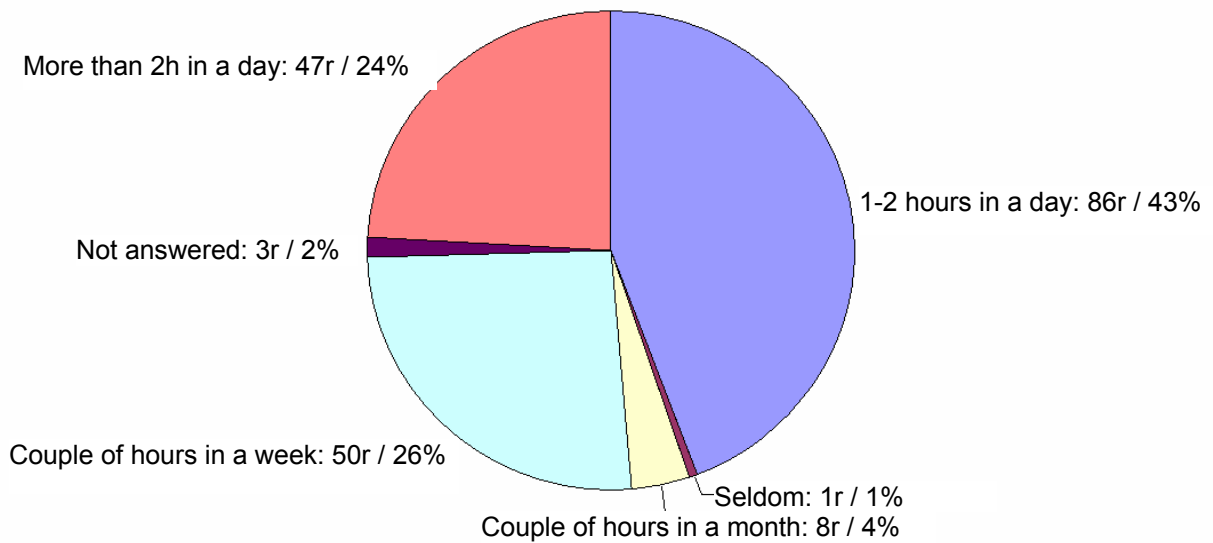
**Figure 4. Usage of professional application software.**

As an interesting result, the usage frequency is not decreasing according to increase of age or length of working experience; but rather opposite. The usage frequency of respondents with working experiences longer than 26 years is equal to respondents with working-experience for 6-10 years and is higher than other age/experience groups.

### **3.2. Aims of using ICT**

In this section the aims of using computers in a working place were investigated. In the following analysis possible aims are ranked according to the frequency of responses.

The most frequently indicated use of computers at the working place is a preparing lectures and learning materials. Distribution frequency is illustrated on a Figure 5 below.

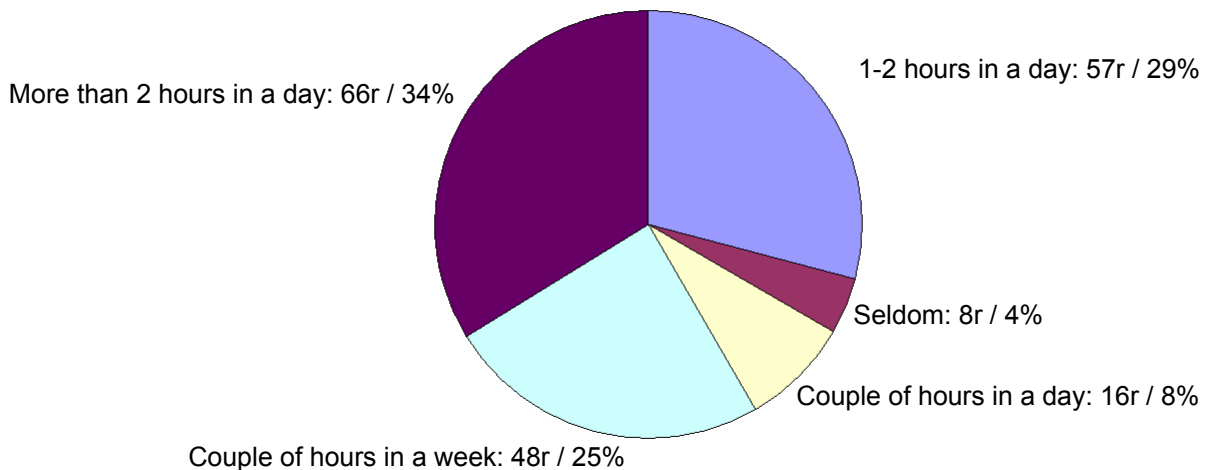


**Figure 5. Working hours spent for preparing lectures/ learning materials.**

47 respondents (24%) are spending more than two hours in a day and 86 respondents (43%) are spending 1-2 hours in a day at the computer for preparing lectures/learning materials.

It can be summarized that all together 133 respondents (67%) are using computers every day at least for a one hour for preparing lectures/ learning materials.

Rather similarly high is computer usage frequency for the activities, connected to research, as illustrated below, on Figure 6.

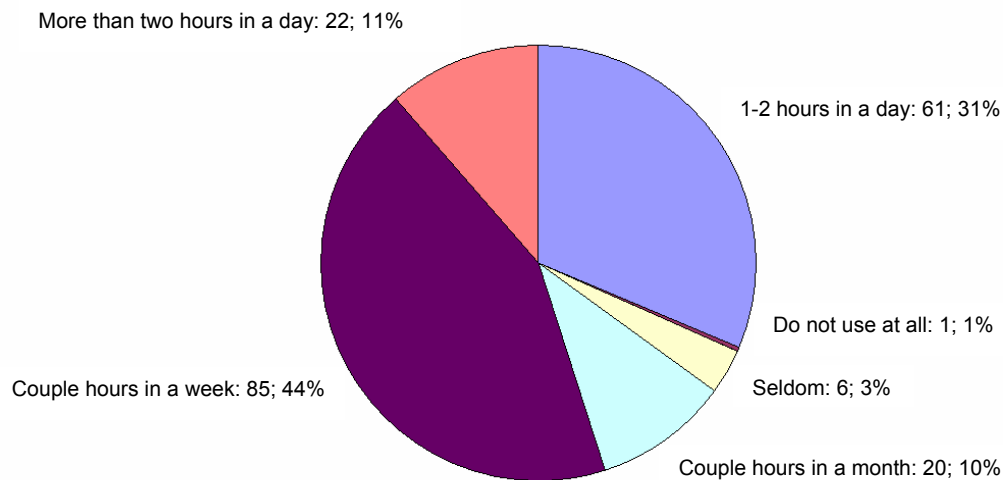


**Figure 6. Computer usage frequency for academic research activities.**

There are more respondents who are using computers more than 2 hours for research activities – 66 respondents (33%) than those, who are using computers more than 2 hours for preparing lectures/learning materials – 57 respondents (29%).

All together, 123 respondents (62%) are using computers at least 1 hour during their working day, for the aim of research. At the same time, to compare response *seldom*, on last two cases, we can see that there are more

respondents, who are using computers seldom for the aim of research – 8 respondents (4%), than those who are using computers seldom for preparing lectures / learning materials – 1 respondent (1%). It is not surprising result, because of the survey sample. Respondents, who are working as full-time lectures, do not have so much time for research activities, or they do not need computers for that.



**Figure 7. Computer usage for information retrieval.**

To compare with previously mentioned, computers usage for *information retrieval* has a bit higher frequency. 22 respondents (11%) indicated they are using computers for *information retrieval every day* more than 2 hours; 61 respondents (31%) are using computers for information retrieval for *1-2 hours in a day*. All together 83 respondent (42%) are using computers for this reason at least one hour per day. Almost as many respondents (44%) are using computers for information retrieval *couple hours in a week*. Only one respondent indicated that *do not use computers for information retrieval at all* (same person indicated as well that *do not use computers for preparing lecture materials*). This result verifies, that 99, 5% of respondents in the sample are using computers.

Proportionally high is the computer usage for *professional communication*. 14 respondents (7%) are using computers for this purpose *More than two hours in a day*; 60 respondents (31%) are using for professional communication computers *1-2 hour in a day*. All together 74 respondents (38%) are using computers for this purpose *at least 1 hour per day*. This indicator is higher than bureaucratic paperwork and private e-mailing. As high number of respondents – 93 people (44%) - are using computers for professional communication for *couple of hours in a week*.

6 respondents (3%) are spending *more than two hours in a day* for private e-mailing; *1-2 hours in a day* are spending time for these reasons 57 respondents (29%). All together, 63 respondents (32%) are using computers for these purposes *more than 1 hour* during their working-time. It should be pointed out, that it was asked, *how much do you use computers for following purposes during your working-hours*. So it is possible, that actual time, spent at the computers to respond to private e-mails is higher, but is done during spare time.

In next section, it was asked, *How much time do you spend for bureaucratic paperwork*. 12 respondents (6%) are spending for that *more than two hour in a days*; 41 respondents (21%) *1-2 hour in a days*. It makes all together, 53 respondents (27%) are spending every day for bureaucratic paperwork *at least 1 hour*. Similarly high is the amount of people, spending time for these purposes for *couple of hours in a week* – 93 respondents (44%). With this question we can indirectly measure the amount of bureaucracy in the institution, which seems to stay in quite reasonable level.

The lowest scores in computer usage aims and purposes among all choices, got *communication with students*; but however, it was quite high. 3 respondents (2%) are *using computers for communication with students every day more than two hours*. 34 respondents (17%) are spending for that *1-2 hours in a day*. It makes all together 53 respondents (27%) are using computers for communicating with students every day at least one hour, which is pretty high result.

Nearly as many respondents are *using computers for communication with students for couple hours in a week* – 94 respondents (47%). There were only 3 people, who do not communicate with students through computers at all. From that it can be drawn a conclusion that e-learning methods and tools are spreading slowly into ordinary teaching-learning process.

Analysis of computer usage intensity for different purposes shows, that except of the usage for preparing lecture materials and usage for professional development (which both received highest usage intensity), the most common answer was *for couple of hours in a week*. In all cases, it was around 50%. From these results it can be derived, that computers are used for very diverse purposes and the intensity of usage on different fields is connected with concrete working-tasks and time-limits of working-day, but is not connected with the unwillingness or insufficient ICT skills. It is pleasurable to see, that computers are pretty widely used for communication – both for professional and private communication, as well as for communication with students, which can be considered as a good basement for moving to e-learning.

### **3.3. What makes teachers to use computers?**

Motivation is often a keyword, to make people to change their lifestyle, to take into the use new tools, to experience new possibilities. In this section it was investigated, why teachers are using computers, what is their motivation?

The highest motivator for using computers during a working day is a *convenience* (93% respondents indicated responses *certainly* or *preferably yes*). Nearly the same important argument is a *saving a time* (88%). These numbers are confirming former estimation, that there are approximately 90% of respondents, who are well motivated and 1-2% of respondents, who are rather reluctant to use computers in their everyday work.

According to responses, on the third place in motivation priority rating is a *wish to try/test new tools/possibilities*. 64 respondents (33%) indicated this with *certainly* and 51 respondents (26%) with *preferably yes*. These numbers are remarkable lower, than previous indicators showed. At the same time it can be noticed higher level of unfavourable attitudes: 26 respondents (13%) answered *preferably not* and 11 respondents (6%) indicated *certainly not*. As a light tentative conclusion, it could be summarized, that for 19% of respondents the seeking for new ICT tools and solutions (incl. e-learning) and accepting them as everyday working instruments is connected only with direct job assignments and they are not so enthusiastic to try it by own interest. At the same time majority of respondents (100 persons) are admitting, that administrative pressure is not a motivator; as a working motivators they are indicating *saving time (computers)*, *convenience* and *wish to try new tools/possibilities*.

It is pleasurable to see, that a number of respondents, indicated as one of their motivator of computer usage because of *fear to seem to be old-fashioned/outmoded* is even lower than previously mentioned motivator *administrative pressure*. Only 3 respondents indicated *fear to be old-fashioned/outmoded* as *certainly* and 2 respondents as *preferably yes*. But as this group of people was very small, it is not representative to analyse their dispersion according to age and profession. As a conclusion it could be said, that even in the oldest age group there are other motivators than fear to be outmoded, to direct people to use computers in their working life.

Surprisingly is *Possibility to be honoured (ex. contests, awards)* not a high motivator. Only 3 respondents indicated this as *certainly* and 2 respondents as *preferably yes*. Even amount of hesitators is lower than with previous questions (choice *so and so*). Question arises if teachers are not requiring honour because of using computers? Or, what is more likely, these answers are showing, in contradiction, that employers (universities) are not interested, if and how their employees (teachers) are using computers? Or is computer usage assumed to be normal part of everyday working life (and these answers are denoting that there is no hope to be honoured because of using computers)? Anyhow, this result should be denoted as a potentially noticeable issue in promoting e-learning. As it seems to be more realistic, that teachers do not hope to be honoured, because of using computers (they are expected to do that), it is probably purposeful to pay more attention to that in promoting e-learning and to honour best practices accordingly.

### **3.4. Self-evaluation of ICT skills**

Respondents were asked to evaluate self-estimated level of competences for several kinds of actions: using text editor for designing a text document, creating a web-page, competences of information retrieval from the

Internet, using software packages for statistical data analysis. Two distinct groups can be distinguished, according to answers: text editing and information retrieval from the Internet, where skills are relatively good; and the other group consist of creating a web-page and statistical data processing, where respondents' skills are remarkably lower.

17% of respondents rated themselves as an expert in designing a text document with text editing software; 69% of respondents rated their skills as *relatively proficient*; it makes all together 86% of respondents (171 people). The same pattern applies to *information retrieval from the Internet*; accordingly the numbers are 17% and 61% witch makes all together 78% of respondents (155 people). On both cases, those, who marked *I need an assistance* or *I am a beginner* were only 4 people. No respondents indicated an answer *Can not at all*. It matches with the results from the analysis of intensity of using text editing software and web-browser. On both cases these are skills, counted to belong to the set of basic ICT skills.

The other group of similar level of skills formed *statistical data processing* and *creating a web-page*. Most of respondents indicated their level of statistical data processing as *limited* – 77 people (47%). 9 people (5%) rated themselves as *an expert*; remain of responses were divided evenly: those, who indicated, that they *can not at all* were 24 people (17%); almost same amount of respondents indicated their level as *beginner* or *needs assistance*. It is likely, that some people indicated their skills as *limited*, in case of real need, can successfully use data processing software, but as their working-tasks do not require the use of this kind of software at the moment, they do not use it actively.

In case of *creating a web-page* the biggest group of respondents indicated their skills as *can not at all* – 60 people (31%). Other responses were divided relatively evenly like in the case of statistical data processing. 8 respondents indicated themselves as *an expert* and 34 people rated themselves as *proficient*. Maybe it is interesting to denote, that there were 5 people who did not respond to this question (as the common amount of no answers of this survey were 1-2 respondents per question).

Differently from statistical data processing, which usage is greatly dependent on working-tasks, skills of creating a web page are in general universal skills and are essential for creating e-learning materials.

### **3.5. Problems due to using ICT at work**

Estonia is a little country and it is not economically possible to translate all the software needed, in Estonian language and therefore most of the software, used in Estonia, is in foreign language. Sometimes it can be a real problem for users and therefore it was asked, *Is the use of software in foreign language a problem for you?* Most of respondents indicated, that *this is not a problem* for them - 73% of respondents; 2% indicated, that *this disturb them relatively much*; 2% indicated this as *one of the main problems*. Similarly most of the respondents do not account the *wantage of working-place with computers* as a problem. 73% of respondents indicated this as *not a problem* for them; 11% indicated, that *this disturb them relatively much*; 7% indicated this as *one of the main problems*. As a conclusion, it can be assumed, that most of the working-places have relatively good computer equipment and users are used to use software in foreign language.

In next section, it was asked, do respondents feel that their own poor computer skills are emerging problems. More than a half of respondents do not indicating this as a problem – 58%; 5% respondents indicated that *this disturb them relatively much*; 11% indicated this as *one of the main problems*. Similarly most of respondents do not see problems in possibilities to have complementary training for teachers (*is not a problem* 57%; *disturbs relatively much* – 6%; *is one of the main problems* – 5%). It can be concluded, that 36% of respondents are accounting their poor computer skills as a disturbing factor and 32% of respondents are indicating that possibilities for complementary training are not sufficient. It shows that ICT skills are not always rated as sufficient and there is a need for extra computer training.

Approximately the same is the distribution of responses in the next section. 47% of respondents do not account *outdated and slow computers* as a problem (*disturbs* – 37%; *disturbs relatively much*– 8%; *is one of the main problems* – 7%). *Insufficient technical support* is not a problem for 44% of respondents (*disturbs* – 44%; *disturbs relatively much* – 6%; *is one of the main problems* – 5%). *Students do not have sufficient access to computers* is not a problem for 45% of respondents (*disturbs* – 39%; *disturbs relatively much* – 11%; *is one of the main problems* – 4%). *Absence of required software* is not a problem for 41% of respondents (*disturbs* – 47%; *disturbs relatively much* – 9%; *is one of the main problems* – 6%). As a conclusion, it can be said, that there are sufficient number of working places with computers, but the quality is not always good enough – relevantly many computers are outdated, and technical support is not always sufficient. Hereby there is a need for newer computer-equipment. It can be said, that teachers have better access to computers than students. Absence of

required software, which disturbs nearly half of respondents, is conforming results of the question, do teachers use special professional software. As we see from the results, teachers are ready to use software, even in foreign language, but there are problems with availability of software.

Biggest problems are concerning time (pressure of time) - 8% respondents indicated this as a *one of the main problems*, 18% said it *disturbs relatively much*, 40 % said it *disturbs* and 33% said it *is not a problem*. It makes pressure of time to be the biggest disturbing factor (all together 26% of respondents indicated this as a disturbing relatively much or as a main problem). There are surprisingly relatively many respondents, indicating *health as a problem, concerning computer usage (eyes, wrist, back)* – only 36% respondents marked, *it is not a problem*. 50% indicating this as a *disturbing factor*; 9% said, it *disturbs relatively much* and 5% stated it as *one of the main problems*. Herby it comes out there is a strong need to introduce ergonomics of computers in universities.

From the questions in the last section, it can be concluded that there are no serious problematic fields in using ICT and no some essential problem were raised. It comes out, when we summarize two possible most negative choices of answer (*disturbs relatively much* or *is one of the main problems*). On no cases – except *the pressure of time* (where it is all together 26%) – they do not make more than 15% of responses. In summarized numbers it is following: *wantage of working-place with computers in the department* – 15%; *outdated and slow computers* – 15%; *absence of required software* – 15%; *students do not have sufficient access to computers* – 15%; *not enough possibilities for complementary training for teachers* – 15%; *health as a problem, concerning computer usage (eyes, wrist, back)* – 14%; *there are no certain general rules in the university* – 12%; *insufficient technical support* – 11%; *own poor computer skills are emerging problems* – 6%; *software in foreign language* – 4%.

#### 4. Readiness and willingness to use e-learning: experiences, competences (technical and pedagogical), attitudes, teaching concepts

In this section, readiness and willingness to use e-learning, was investigated. To evaluate e-learning possibilities and to analyze needs, the respondents work-load of the face-to-face classes per week was asked (classes, they hold in classroom). Answers are introduced on Figure 8 below:

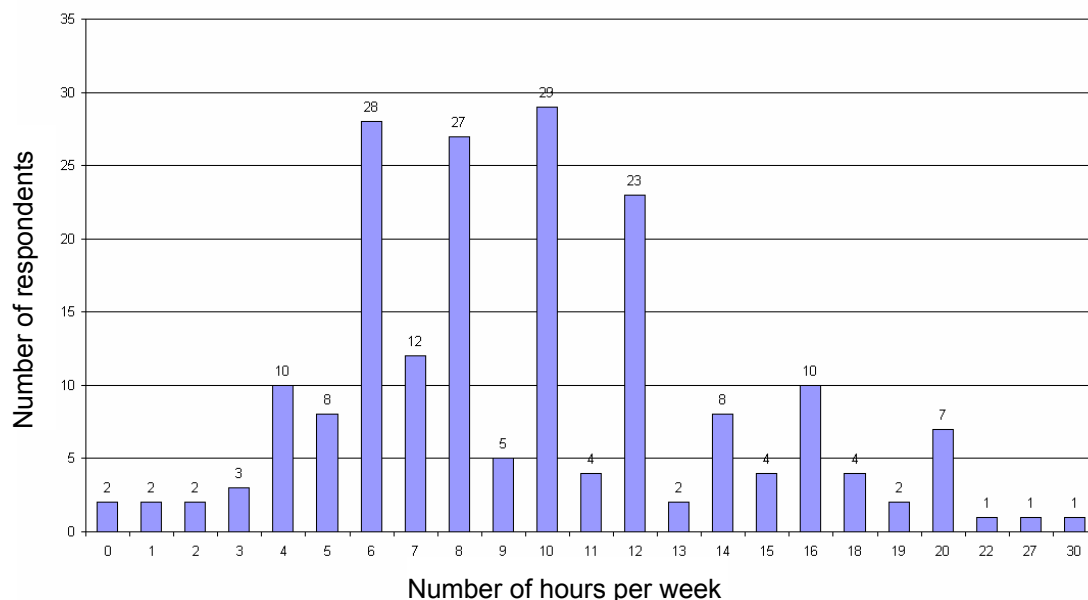
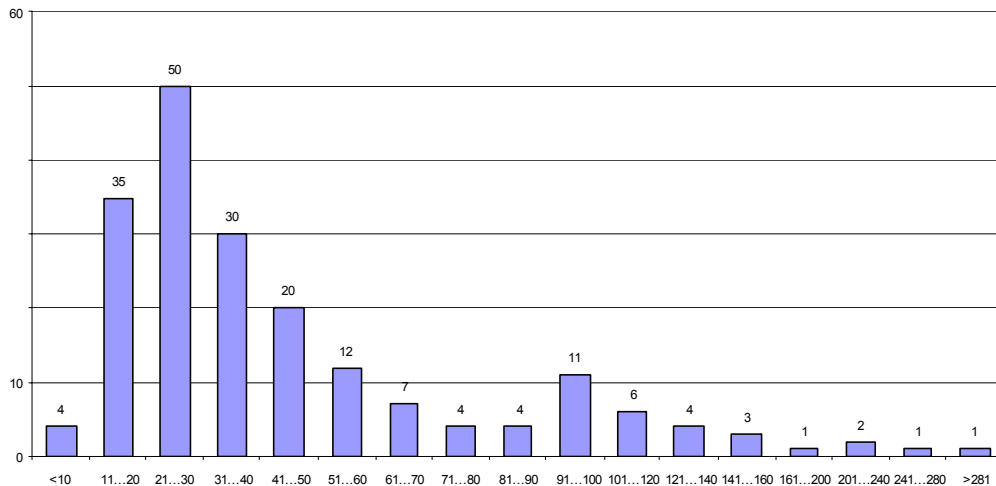


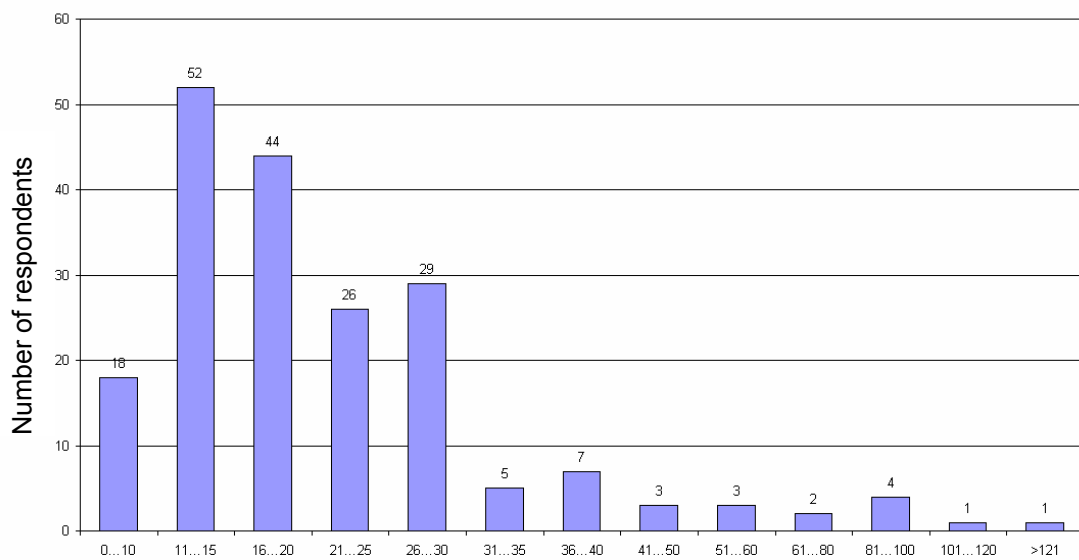
Figure 8. Work-load of classroom teaching (hours per week).

To make use of e-learning, the number of students in the group is important data. Therefore it was asked, how many students there are in the biggest group, you have lectures with (this year). Answers are summarized on Figure 9 below:



**Figure 9. Number of students in the biggest group**

As we see from the figure, the most frequently indicated maximum size of student groups (number of students in a group) is 21-30 students in a group. At the same time there are relatively many bigger groups – for example 11 teachers (respondents) have in their biggest group 91-100 students. Biggest groups, which were indicated, consisted of 280 and 320 students. The average number of students in a group is introduced on Figure 10 below:



**Average number of students in the biggest group**

**Figure 10. The average number of students in a group.**

In next section it was asked, *How much do you use e-learning tools/instruments in your teaching?* There are only 24% of respondents (47 people) who do not use e-learning tools at all; almost half of respondents (49% - 95 people) are using some e-learning tools (some web-based tools) and 25% are using several e-learning tools. 4 respondents indicated that they do all their teaching in a web-based form.

It was asked to evaluate personal experiences in different learning management areas. Below are the results, summarized by the frequency of respondents, indicated these actions in brackets as *Regularly* or *Seldom*:

- Feedback to students by e-mail (47% *Regularly* and 34% *Seldom*)
- Uploading learning materials (39% and 17%)
- Creating a course web-page (17% and 13%)
- Using a web-based learning management system (ex. WebCT, LearnLoop etc) (11% and 7%)

- Participating a web-based course as a student (3% and 11%; do not have any experience – 69%)
- Combining face-to-face courses with e-learning (11% and 8%; do not have any experience – 71%)
- Conduct an entirely web-based course (3% and 3%; do not have any experience – 90%)

22 respondents are using regularly web-based learning management system in their teaching process; but 5 of them do not have experiences of learning in a web-based course. 6 respondents who are themselves learning regularly on web-based courses are all more or less used web-based learning environments in their teaching. Herby it can be suggested, that for better spreading e-learning ideas among teachers, it is advisable to give to teachers more experiences, how to be a learner on a web-based course.

Separately I would like to compare respondents' experiences in using teaching methods, which do not require digital environment (indicated in brackets as *Regularly* or *Seldom*):

- Using essays and reports to measure learning outcomes (38% and 20%)
- Conducting a subgroup work (29% and 24%; do not have any experience – 41%)
- Measuring learning outcomes by multiple-choice tests (28% and 20%)
- Conducting traditional distance courses (21% and 16%)
- Using portfolios to measure learning outcomes (7% and 7%)

Following are translated some of answers to the question *In which areas of e-learning do you need some supplementary training?*:

- “Previous part of the (*questionnaire*) (tm. e-learning) do not have any connections to me and I am not sure do I need it and when I will need it. I answered 21 times “can not at all”, what can be read as ‘I do not need it, I have not even thought about it’.”
- “My previous answers (*where it was asked for competences, respondents feel to need supplementary training*) were filled formally, because I am not interested in e-learning. I would like to see some comparisons of results of e-learning.”
- “It is hard to comment things you have never dealt with.”
- “My train is already gone: my eyes are weak and my intension is to teach people, not machine.”
- “I have taught both distance- and fulltime students, but how to make use of e-learning with fulltime students?”
- “I do not perceive any need for complementary training; as well as I do not perceive any need for e-learning; I have tried and I am convinced that nothing can replace personal contact. I am using e-learning tools instead of traditional tools (pen, paper, chalk, and blackboard) but not e-learning instead of traditional learning.”
- “I am not planning to use e-learning in the near future and therefore do not need complementary training”
- “I am not enthusiastic in e-learning actions. If I do have a need, I could learn it. Training in most cases is a waste of the time”
- “Generally I am teaching subjects, where reasonable use of e-learning is limited”
- “Initially I do not need any training. First the trainers need to gain certain level, before I would like spend my time on it.” (*most of the answers by this respondent in this section were “can not at all”*)
- “I think it is unprofitable to teach every teacher to design a web-based learning environment. It is enough, if the faculty/department has a specialist, who can PROFESSIONALLY create and design a course and who can constantly upgrade it; plus instruct the teacher, how to us it. “
- “Do not have time to think about it.”
- “Concerning e-learning, I feel myself entirely incompetent and do not know, what to wish. ICT seems to be doubtful to teach some art and craft subjects by e-learning; as well measuring knowledge with tests.”
- “Because my subject can not be taught by e-learning, I do not feel (initially) need for it.”
- “Our learning system is not built on e-learning, but it is traditional. When it is stated, that it should be e-learning, then I will start to act.”

- “Can not deal with some special theme, before there is no whole picture of ideology behind.”
- “How to conduct a web-based learning so, that this will not demand more time from the teacher than traditional teaching? My biggest fear is, that then I do not have time for anything else, than to follow online discussions, response to e-mails etc. It remains no time to other work-tasks?”
- “Regarding following: cheapness can not be the aim by itself (cheap and poor are synonyms)”
- “Do not perceive why to fetish e-learning.”
- “No distance learning – no problems.”
- “So far I do not have any motivation, why I should upgrade my knowledge in this field, especially – why to deal with it? It wastes enormously time and is not economically effective!”

At the same time there are some positive answers to the question *In which areas of e-learning do you need some supplementary training?*:

- “All previously mentioned (*areas*)!”
- “Planning a course with web-based system”
- “Primarily experiences, in best case conduct a course together with experienced mentor.”
- “I need to start with really beginners (*in e-learning*) and therefore did not answer to the previous question (*it was asked to mark 5 most important fields, when training is needed*).”
- “Evaluating time-pressure, scheduling and pervading the course on most effective way, so, that both I and a student receive positive experience. What are the factors of success?”
- “How to measure learning outcomes of courses with technical background by tests”
- “How to perform and produce video-lectures and how to use them in e-learning?”
- “I need general ICT training (which possibilities there are, what one should do, etc). Because I have never been on some IT training, my knowledge and competences are weak.”
- “Adult training, using computers, methodology of lectures.”
- “How to organize group-work in e-learning; socializing.”
- “Creating and conducting an e-learning course by the guidance of experienced tutor; there should be tutor and motivated students during the course, which can help me.”
- “I would like to have some self-study materials – to get to know different learning management systems.”
- “Different kind of videoconferencing, how to bring different media to e-learning.”
- “I think, it can be learned through e-learning, how to organize e-learning. To start this process for the beginners, it should be started with some face-to-face meetings. The course should not cost much (less than 1000 EEK); duration and completion should be flexible (according to teachers’ workload).”
- “I need some complimentary information about the software, suitable for teaching foreign language. And a training, how to use them.”
- “Possible problems with network, connectivity of hard- and software, open-source software.”

In general, it can be said, that the overall attitude to e-learning is pretty positive. Most of respondents do not agree with the proposition *E-learning is a pointless media hype*: certainly not – 29%; rather not – 32%; so and so – 30%; yes – 7%; certainly yes – 1%. It can be concluded, that 61% of respondents are saying, they are for e-learning.

There are little bit more people, believing, that e-learning is much more in the interest of ICT companies: *certainly yes* – 9% of respondents; *yes* – 14%; *so and so* – 39%; *rather not* – 30%; *certainly not* – 7%. Most of the respondents are agreed, that there is a need to develop e-learning in their institution (56% said *certainly yes* or *yes*). 68% of respondents are agreed, that e-learning makes higher-education more flexible.

## 5. Rating support systems and training

In the last section of the questionnaire, it was asked about the quantity of ICT-related complementary training, respondents have passed during the three last years. Responses are illustrated on Figure 11 below:

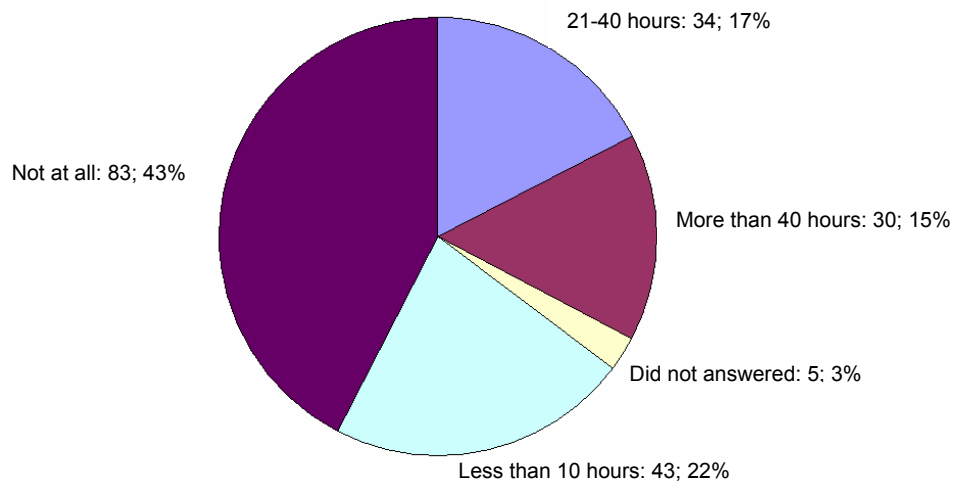


Figure 11. IT-related complementary training during three last years.

Similar pattern is with pedagogical complementary training during the three last years: 48% of respondents have got no pedagogical complementary training at all (during the 3 last years); 19% had it *less than 10 hours*; 13% had it *21-40 hours* and 17% had it *more than 40 hours*. More than half of respondents are satisfied both with the announcement and the arrangement of complementary training in their institution. Fewer respondents are satisfied with the content of training and with possibilities to implement gained new knowledge in practice (39% of respondents are positive). Least satisfying is the assortment of available complementary training.

Overall attitude to ICT-related complementary training possibilities is comparatively positive or neutral (according to the distribution of answers). In every category, except in *assortment of complementary training possibilities*, higher percentage of responses are positive than negative, but up till half of respondents are on neutral position. As there were more respondents who were unsatisfied with the assortment of complementary training possibilities, then it will be reasonable to increase the assortment.

Regarding support systems in the institution, more respondents are satisfied with the IT support than with support to e-learning or pedagogy.

## 6. Summary

Present research was the pilot research, to map the situation and perspectives of e-learning in Estonia in 2002. In 2003/2004 it was conducted a new, deeper and proper research, by KPMG. On the basis of received results, it is purposeful to form a narrowly targeted e-learning barometer, with witch to measure dynamics of e-learning every year. Results would be very valuable to Estonian E-University, to set priorities and plan further investments.