CRITON - Prediction of e-learners' progress and timely assessment of the achievement of learning outcomes in Lifelong Learning

Report of assessment methods used by partners

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1. Introduction

Assessment is an ongoing process that involves planning, discussion, consensus building, reflection, measuring, analyzing and improving based on data and artifacts gathered about a learning objective. Any assessment is linked to critical questions, such as:

- *Why* do we measure?
- *What* do we are measuring?
- *How* do we measure it?
- *How much* do we need to measure?
- *When* do we measure it?

Assessment is in the core of the project CRITON (www.criton.eu). CRITON is a transnational cooperation project to enhance the learning process in distance education systems and e-learning, using assessment methods for predicting the progress of students and to improve evaluation methods leading to better learning outcomes and more personalized learning.

In the project participate seven partners from six different countries of Europe (Greece, Austria, Finland, Lithuania, Sweden and Germany).

This deliverable presents the findings of the survey about different assessment methods used in eLearning environment in order to define the most widely used assessment practices in Austria, Lithuania, Germany and Greece (since Finish and Swedish partners couldn't collect an appropriate number of data) which can provide accurate measure of student performance in eLearning.

The research questions of the study are:

- Which are the most widely used educational assessment methods in Austria, Lithuania, Germany, Finland, Sweden, Greece and why?

- What are the particular features of assessment methods used in eLearning environments in Austria, Lithuania, Germany, Finland, Sweden and Greece?

- Which assessment methods in eLearning environments have added value for students, staff, institutions and future employers?

- Which e-assessment formats just focus on testing the acquisition of declarative knowledge and which provide much deeper insights, for both the student and the teacher?

- How can feedback influence student achievement in eLearning?

- Which are the conditions under which assessment supports students' progress in an eLearning environment?

2. Methodological Approach

In order to describe the specific needs of the partners regarding assessment, both qualitative and quantitative data are necessary. The purpose of this field research was also to validate the findings of Deliverable 2.1. That's why, besides collecting demographic data and recording the predominant and preferable type of assessment, there where additional questions about:

- using e-portfolios,

- learning styles,

- preferred answer formats,

- peer assessment, and

- feedback practices in the study population.

2.1 Data Sources and Data Collection Procedure

Questionnaires for all levels of education for students and tutors (for the students in primary and secondary education questionnaire, see Appendix A1; for the learners in higher and adult education, see Appendix A2; for the learners in VET questionnaire, see Appendix A3; for all tutors questionnaire, see Appendix B) have been collected through the website *Surveymonkey* [https://www.surveymonkey.com/]. Also, six interviews have been involved (see Appendix C) to gain details from a few people.

The survey took place between 20/05/2013 and 15/09/2013.

The following Table shows the received questionnaires per country and per educational level.

	PRIMARY & SECONDARY	HIGHER & ADULT LEARNING	VET	TUTORS
FINLAND	2	0	0	1
GERMANY	1	23	16	6
AUSTRIA	2	33	0	5
LITHUANIA	19	77	24	89
GREECE	51	821	29	65
SWEDEN	2	0	0	2

Table 1 Survey Population per country and educational level

2.2 Approach to analyzing the data

Data have been obtained in a form suitable for statistical processing, either through the statistical package SPSS or Microsoft Excel software. According to the type of data, descriptive statistic conducted through frequency tables and graphs for all variables and comments were made on the results. Further statistical analysis was performed through contingency tables and statistical test X^2 in order to detect and comment the characteristics that affect the choices and preferences of survey respondents.

Particular attention was paid to the variables which have multiple responses [for example, in SPSS there is a distinct option in Analyze menu for these variables].

Consistency tests of Chi Square are possible only when the sample is large enough and enough combinations of variables categories [i.e. cells in crosstab tables] have several entries. If this doesn't hold, the results can be interpreted as simple indications of the correlations between variables.

3. Research Results

This chapter presents the results of the survey in two parts.

The first part shows results from each country, but only according to the adequate collected data per educational level:

- Austria (only for Learners in Higher and Adult educational level),

- Germany (only for Learners in Higher and Adult and Vocational Education and Training – VET- educational level),

- Lithuania (for Tutors and Learners in all educational levels),

- Greece (for Tutors and Learners in all educational levels).

The second part is divided into four sections with the second order comparative data analysis:

1. The first section presents the opinions of Tutors, in the case of Lithuania and Greece, since only in these countries there have been respondents.

2. The second section presents the opinions of Learners in Higher and Adult education, in the case of Lithuania, Austria, Germany and Greece.

3. The third section shows the opinions of Learners in Primary and Secondary education, for the case of Lithuania and Greece.

4. The final fourth section presents the findings from Learners in Vocational Education and Training (VET) for the case of Lithuania, Germany and Greece.

PART I

RESEARCH RESULTS PER COUNTRY

3.1.1 The Case of Austria

This section summarizes the results of the empirical survey that has been conducted by Katharina Resch (*die Berater®*) in the case of Austria.

The study population is described below, on Table 2.

Study population	Students in primary & secondary education	Students in higher education & adult education	Students in vocational education and training	Tutors and teachers	SUM
AUSTRIA	2	33	0	5	n=40

Table 2: Study population

As the table above shows, analysis only makes sense for higher education and adult education. In the next section therefore *only results of students in higher education (college, university) and adult education are described* due to the sample size and the concentration of the partner *die Berater®* (P3) on adult education issues and target groups.

3.1.1.1 Learners in Higher and Adult Education

Students from higher education and adult education were mainly between 25 and 49 years old. Only 18% were below the age of 25 and only 3% were older than 50 years.

Age of the students in the survey	Frequency	Percentage (%)
Under 25 years	6	18 %
25-29 years	8	24 %
30-39 years	11	33 %
40-49 years	7	21 %
50-59 years	1	3 %
60 years or older	0	0 %

Table 3: Age of study population

The questionnaire included one question about self-reported socio-economic status. 24% rated themselves as people with a high socio-economic status (status of their job, educational background, income) and 76% reported middle high status.

Self-reported socioeconomic status of the students in the survey	Frequency	Percentage (%)
High status	8	24 %
Middle status	25	76 %
Low status	0	0 %

Table 4: Socio-economic status

Gender was balanced with 2/3 female study participants and 1/3 male participants.

Gender	Frequency	Percentage (%)
female	20	61 %
male	13	39 %

Table 5: Gender

All students from higher education and adult education in the survey worked. 39% of them work part-time, 58% work full-time and 3% have seasonal or occasional jobs. This is important regarding the following results and their choice of e-learning in general.

Current work status	Frequency	Percentage (%)
Yes	33	100 %
No	0	0 %
Type of work		**Percentage (%)**
Part-time work	13	39 %
Occasional/seasonal work	1	3 %
Full-time work	19	58 %

Table 6: Work status

12% of students from higher education and adult education use e-portfolio, but the majority (88%) does not use it. For those who use it answers about its usefulness are quite different – from no usefulness at all to very high usefulness.

E-portfolio use	Frequency	Percentage (%)
Yes	4	12 %
No	29	88 %
E-portfolio usefulness if in use		Percentage (%)
Not much	1	3 %
A bit	1	3 %
Quite a lot	1	3 %
Very much	1	3 %

Table 7: E-portfolio usage

We understand something about learning styles of the students with the next question. 55% answered that trying to understand the topic while doing e-learning exercises was their main goal. 45% concentrated on finishing the exercise.

Concentrate on:	Frequency	Percentage (%)
Understanding the topic	18	55 %
Finishing the exercise	15	45 %

Table 8: Main focus while e-learing

According to the study population multiple choice questions are still the most dominant answer type (36%), followed by short answers (21%) and drag and drop menus (10%). 9% are familiar with animated quizzes, 7% with sentence builders, 6% with tables and charts during e-learning assessments. Less used formats are voice response and games (3% each).

Assessment Formats in use	Frequency	Percentage (%)
Multiple Choice Question (MCQ)	24	36 %
Short answer question type	14	21 %
Sentence builders	5	7 %
Tables and charts exercises	4	6 %
Voice responses	2	3 %
Drag & Drop	7	10 %
Word match	3	4 %
Animated quizzes	6	9 %
Games	2	3 %

Table 9: Dominant answer formats

Asked about their four preferred answer formats in e-learning assessment, students from higher education and adult education stated preferring multiple choice over short answers, drag and drop menus, and animated quizzes.

Preferred Assessment Format	Frequency	Rank
Multiple choice question (MCQ)	22	Position 1
Short answer question type	11	Position 2
Drag & Drop	5	Position 3
Animated quizzes	4	Position 4
Sentence builders	3	Position 5
Tables and charts exercises	3	Position 5

Table 10: Preferred answer formats

Students from higher education and adult education were also asked about the familiarity with peer assessment. 27% answered never using is, 48% answered rarely using it, which means that assessment is in most cases still done by the teacher alone. Only 18% usually use peer

assessment. When asked about the usefulness of peer assessment, 45% answered that it was not useful or a little bit useful. Only 27% stated that it was quite helpful for them.

Peer assessment frequency	Frequency	Percentage (%)
Never	9	27 %
Rarely	16	48 %
Usually	6	18 %
Always	0	0 %
Peer assessment usefulness		Percentage (%)
Not much	1	3 %
A bit	14	42 %
Quite a lot	9	27 %
Very much	0	0 %

Table 11: Peer assessment

9% of students from higher education and adult education stated not paying attention to feedback at all, while 39% mentioned paying attention to it a little bit. 33% answered that they pay quite a lot of attention to it and 18% state paying very much attention to it. Most students pay attention to feedback in the case of a good and bad mark, so it does not depend on the grade (70%). One fourth mentions paying more attention to feedback in the case of a bad mark. Feedback as a useful tool in the learning process was agreed on by most students: 24% say that feedback helps them a lot, 30% quite a lot and 42% a little bit.

Attention to feedback	Frequency	Percentage (%)
Not much	3	9 %
A bit	13	39 %
Quite a lot	11	33 %
Very much	6	18 %
You read feedback more carefully in the case of:		Percentage (%)
A good mark	2	6 %

A bad mark	8	24 %
Both cases	23	70 %
In what extent does feedback help you understand and learn in elearning environment?		**Percentage (%)**
Not much	1	3 %
A bit	14	42 %
Quite a lot	10	30 %
Very much	8	24 %

Table 12: Feedback practices

We also wanted to know if feedback practices in e-learning lead to discussions with the teacher. Unfortunately it does not, since 12% say that is does not lead to a discussion, 55% say only sometimes and 33% say that it leads to a conversation with the teacher often.

Feedback leads to discussion with teacher	Frequency	Percentage (%)
Not at all	4	12 %
Sometimes	18	55 %
Often	11	33 %
Always	0	0 %

Table 13: Feedback with the teacher

3.1.2 The Case of Germany

The table below summarizes the number of collected questionnaires in Germany by Monika Czerwinski, Christian Hendrichs and Annette Koch (Arbeit und Bildung e.V.).

One student from primary and secondary school answered the questionnaire, the number is very low due to the fact that only few schools in Germany use e-learning at all. Twenty three students in higher education and adult education as well as sixteen students in VET answered the questionnaire. Six tutors and teachers answered the survey to also view their opinion.

Study population	Students in primary & secondary education	Students in higher education & adult education	Students in vocational education and training	Tutors and teachers	SUM
Germany	1	23	16	6	n=46

Table 14: Study population

As the table above shows, analysis only makes sense for higher education and adult education and for VET. In the next section therefore the results of students in higher education (college, university) and adult education and students in vocational education and training are described.

3.1.2.1 Learners in Higher and Adult Education

Students from higher education and adult education were mainly under 25 years old. Only 43,5 % were between the age of 25 and 39 years.

Age of the students in the survey	Frequency	Percentage (%)
Under 25 years	13	56,5 %
25-29 years	6	26,1 %
30-39 years	4	17,4 %
40-49 years	0	0 %
50-59 years	0	0 %
60 years or older	0	0 %

Table 15: Age of study population

The questionnaire included one question about self-reported socio-economic status. Only 8,7 % rated themselves as people with a high socio-economic status (status of their job, educational background, income) and 17,4 % reported low status. The most of them (73,9 %) rated themselves as people with a middle socio-economic status.

Self-reported socioeconomic status of the students in the survey	Frequency	Percentage (%)
High status	2	8,7 %
Middle status	17	73,9 %
Low status	4	17,4 %

Table 16: Socio-economic status

Gender was divided into 3/4 female and 1/4 male study participants.

Gender	Frequency	Percentage (%)
female	17	73,9 %
male	6	26,1 %

Table 17: Gender

60,9 % of the students from higher education and adult education in the survey were in employment. 35,7 % of them work part-time, only 21,4 % work full-time and most of them (42,9 %) have seasonal or occasional jobs. This is important regarding the following results and their choice of e-learning in general.

Current work status	Frequency	Percentage (%)
Yes	14	60,9 %
No	9	39,1 %
Type of work	**Frequency**	**Percentage (%)**
Part-time work	5	35,7 %
Occasional/seasonal work	6	42,9 %
Full-time work	3	21,4 %

Table 18: Work status

17,8% of the students from higher education and adult education use e-portfolio, but the majority (82,6%) does not use it. From those who use it, 75 % consider e-portfolio very useful.

E-portfolio use	Frequency	Percentage (%)
Yes	4	17,4 %
No	19	82,6 %
E-portfolio usefulness if in use	**Frequency**	**Percentage (%)**
Not much	1	25 %
A bit	0	0 %
Quite a lot	0	0 %
Very much	3	75 %

Table 19: E-portfolio usage

We came to know something about learning styles of the students with the next question. Only 1/4 answered that trying to understand the topic while doing e-learning exercises was their main goal. 3/4 concentrated on finishing the exercise.

Concentrate on:	Frequency	Percentage (%)
Understanding the topic	6	26,1 %
Finishing the exercise	17	73,9 %

Table 20: Main focus while e-learning

According to the study population, multiple choice questions are still the most dominant answer type (31,2%), followed by short answers (14,1%) and drag and drop menus (12,5%). 9,3% are familiar with sentence builders, 7,8 % with voice response, 6,3 % with tables and charts as well as word match during e-learning assessments. Less used formats are animated quizzes and games (4,7% each) and sliders (3,1 %).

Assessment Formats in use	Frequency	Percentage (%)
Multiple Choice Question (MCQ)	20	1,2 %
Short answer question type	9	14,1 %
Sentence builders	6	9,3 %
Tables and charts exercises	4	6,3 %
Voice responses	5	7,8 %
Drag & Drop	8	12,5 %
Word match	4	6,3 %
Animated quizzes	3	4,7 %
Games	3	4,7 %
Sliders	2	3,1 %

Table 21: Dominant answer formats

Asked about their four preferred answer formats in e-learning assessment, students from higher education and adult education stated preferring multiple choice over games, short answers, drag and drop menus, and animated quizzes.

Assessment Formats in use	Frequency	Percentage (%)
Multiple Choice Question (MCQ)	14	30,4 %
Short answer question type	5	10,9 %
Sentence builders	2	4,3 %
Tables and charts exercises	3	6,5 %

Voice responses	2	4,3 %
Drag & Drop	5	10,9 %

Table 22: Preferred answer formats (to be continued on next page)

Assessment Formats in use	Frequency	Percentage (%)
Word match	3	6,5 %
Animated quizzes	5	10,9 %
Games	6	13,1 %
Sliders	1	2,2 %

Table 22: Preferred answer formats

Students from higher education and adult education were also asked about the familiarity with peer assessment. 43,5% answered never using it, 39,1 % answered rarely using it, which means that assessment is in most cases still done by the teacher alone. Only 13% usually and 4,3 % always use peer assessment. When asked about the usefulness of peer assessment, only 17 students answered – for more than 3/4 it was not useful or a little bit useful. Less than 1/4 stated that it was quite helpful for them.

Peer assessment frequency	Frequency	Percentage (%)
Never	10	43,5 %
Rarely	9	39,1 %
Usually	3	13,1 %
Always	1	4,3 %
Peer assessment usefulness	**Frequency**	**Percentage (%)**
Not much	1	5,9 %
A bit	3	17,6 %
Quite a lot	6	35,3 %
Very much	7	41,2 %

Table 23: Peer assessment

17,4 % of students from higher education and adult education stated not paying attention to feedback at all, while 47,8 % mentioned paying attention to a little bit. 30,5 % answered that they pay quite a lot of attention to it and only 4,3 % state paying very much attention to it. 47,8 %

students pay attention to feedback in the case of a good and bad mark, also 47,8 % pay attention to feedback in case of a bad mark. Only 4,3 % mention paying more attention to feedback in the case of a good mark. Feedback as a useful tool in the learning process was agreed on by most students (21 answers): 42,9 % say that feedback helps them very much or quite a lot 33,3 % say a little bit and at least 23,8 % say that feedback helps them not much.

Attention to feedback	Frequency	Percentage (%)
Very much	1	4,3 %
Quite a lot	7	30,5 %
A bit	11	47,8 %
Not much	4	17,4
You read feedback more carefully in the case of:	Frequency	Percentage (%)
A good mark	1	4,3 %
A bad mark	11	47,8 %
Both cases	11	47,8 %
In what extent does feedback help you understand and learn in e-learning environment?	Frequency	Percentage (%)
Not much	5	23,8 %
A bit	7	33,3 %
Quite a lot	8	38,1 %
Very much	1	4,8 %

Table 24: Feedback practices

We also wanted to know if feedback practices in e-learning lead to discussions with the teacher. Unfortunately it does not, 50 % say that is does not lead to a discussion, 45,5 % say only sometimes and only 4,5 %% say that it leads to a conversation with the teacher often.

Feedback leads to discussion with teacher	Frequency	Percentage (%)
Never	11	50,0%
Rarely	10	45,5 %
Usually	1	4,5 %
Always	0	0 %

Table 25: Feedback with the teacher

3.1.2.2 Learners in VET

Students in vocational education and training were mainly between the age of 40 and 59 years. Only 18,75 % were under 40 years old.

Age of the students in the survey	Frequency	Percentage (%)
Under 25 years	0	0 %
25-29 years	1	6,25 %
30-39 years	2	12,5 %
40-49 years	3	18,75 %
50-59 years	9	25,25 %
60 years or older	1	6,25 %

Table 26: Age of study population

The questionnaire included one question about self-reported socio-economic status. Only 6,6 % rated themselves as people with a low socio-economic status (status of their job, educational background, income) and 13,3 % reported high status. The most of them (80 %) rated themselves as people with a middle socio-economic status.

Self-reported socioeconomic status of the students in the survey	Frequency	Percentage (%)
High status	2	13,4 %
Middle status	12	80 %
Low status	1	6,6 %

Table 24: Socio-economic status

Gender was balanced with 87,5 % female and 12,5 % male study participants.

Gender	Frequency	Percentage (%)
female	14	87,5 %
male	2	12,5 %

Table 28: Gender

92,9 % of the students in vocational education and training in the survey were employed. 50 % of them work full-time, 42,9 % work part-time and only 7,1 % have seasonal or occasional jobs. This is important regarding the following results and their choice of e-learning in general.

Current work status	Frequency	Percentage (%)
Yes	13	92,9 %
No	1	7,1 %
Type of work	Frequency	Percentage (%)
Part-time work	6	42,9 %
Occasional/seasonal work	1	7,1 %
Full-time work	7	50 %

Table 29: Work status

Only 10 % of the students in vocational education and training use e-portfolio, but the majority (90 %) do not use it. From those who use it 50 % find e-portfolio very useful.

E-portfolio use	Frequency	Percentage (%)
Yes	1	10 %
No	9	90 %
E-portfolio usefulness if in use	Frequency	Percentage (%)
Not much	1	50 %
A bit	0	0 %
Quite a lot	0	0 %
Very much	1	50 %

Table 30: E-portfolio usage

We came to know something about learning styles of the students with the next question. 44,4 % answered that trying to understand the topic while doing e-learning exercises was their main goal. 55,6 % concentrated on finishing the exercise.

Concentrate on:	Frequency	Percentage (%)
Understanding the topic	4	44,4 %
Finishing the exercise	5	55,6 %

Table 31: Main focus while e-learning

According to the study population multiple choice questions and short answer question type are still the most dominant answer type (19,5% each), followed by voice responses and drag and drop menus (12,2% each). 9,75% are familiar with sentence builders as well as with tables and charts. Less used formats are word math (7,2 %), games (4,8 %) sliders and hotspot (2,4 % each).

Assessment Formats in use	Frequency	Percentage (%)
Multiple Choice Question (MCQ)	8	19,5 %
Short answer question type	8	19,5 %
Sentence builders	4	9,75 %
Tables and charts exercises	4	9,75 %
Voice responses	5	12,2 %
Drag & Drop	5	12,2 %
Word match	3	7,2 %
Games	2	4,8 %
Hotspot	1	2,4 %
Sliders	1	2,4 %
Animated quizzes	0	0 %

Table 32: Dominant answer formats

Asked about their four preferred answer formats in e-learning assessment, students in vocational education and training stated preferring multiple choice over short answers, sentence builders, word math and games.

Assessment Formats in use	Frequency	Percentage (%)
Multiple Choice Question (MCQ)	6	25 %
Short answer question type	4	16,7 %
Sentence builders	4	16,7 %
Tables and charts exercises	1	4,1 %
Voice responses	0	0 %
Drag & Drop	1	4,1 %
Word match	3	12,5 %
Games	3	12,5 %
Hotspot	2	8,4 %
Sliders	0	0 %
Animated quizzes	0	0 %

Table 33: Preferred answer formats

Students in vocational education and training were also asked about the familiarity with peer assessment. 10 % answered they are never using it, 70 % answered rarely using it, which means that assessment is in most cases still done by the teacher alone. Only 10 % use peer assessment usually and 10 % use peer assessment always. When asked about the usefulness of peer assessment, only 10 students answered – for 90 % it was not useful or a little bit useful. Only 10 % stated that it was quite helpful for them.

Peer assessment frequency	Frequency	Percentage (%)
Never	1	10 %
Rarely	7	70 %
Usually	1	10 %
Always	1	10 %
Peer assessment usefulness	Frequency	Percentage (%)
Not much	3	30 %
A bit	6	60 %
Quite a lot	1	10 %
Very much	0	0 %

Table 34: Peer assessment

Only 10 % of students in vocational education and training stated paying none or a little bit attention to feedback at all, while 80 % mentioned paying attention to it quite a lot and 10 % answered that they pay very much attention to it. 70 % students pay attention to feedback in the case of a good and bad mark, 30 % pay attention to feedback in case of a bad mark and none of them mentioned paying more attention to feedback in the case of a good mark. Feedback as a useful tool in the learning process was agreed on by most students (10 answers): 80 % say that feedback helps them very much or quite a lot, 20 % say a little bit.

Attention to feedback	Frequency	Percentage (%)
Very much	1	10 %
Quite a lot	8	80 %
A bit	1	10 %
Not much	0	0 %
You read feedback more carefully in the case of:	Frequency	Percentage (%)
A good mark	0	0 %
A bad mark	3	30 %
Both cases	7	70 %
In what extent does feedback help you understand and learn in e-learning environment?	Frequency	Percentage (%)
Not much	0	0 %
A bit	2	20 %
Quite a lot	7	70 %
Very much	1	10 %

Table 35: Feedback practices

We also wanted to know if feedback practices in e-learning lead to discussions with the teacher. Unfortunately it does not, since 60 % say that it never or rarely lead to a discussion, 40 % say only sometimes.

Feedback leads to discussion with teacher	Frequency	Percentage (%)
Never	1	10 %
Rarely	5	50 %
Usually	4	40 %
Always	0	0 %

Table 36: Feedback with the teacher

3.1.3 The Case of Lithuania

This section summarizes the results of the empirical survey that has been conducted by Gileta Kieriene (*SOROS INTERNATIONAL HOUSE)* in the case of Lithuania.

3.1.3.1 Tutors

In the research 89 teachers and tutors have taken part. Most of them are teachers and tutors in higher education (82%) as Table 37 shows.

TUTORS' LEVEL OF EDUCATION	Total Number	Percentage (%)
Primary Education	3	3
Secondary Education	5	6
VET	6	7
Higher Education	73	82
Adult Education	2	2
Total	89	100

Table 37: Number of Teacher and Tutor Participants

Almost all the tutors consider that e-assessment method should encourage technology (90%), e-Learning (81%) and then rethinking of curriculum (78%). On the other hand, most tutors - regardless the level of education they work for - consider that an assessment method in eLearning environment supports Higher order thinking (68%), 52% believe that an assessment method supports social skills and only 24% agree that it support group work.

In order to enhance the learning experience through assessment, the surveyed teachers and tutors would take into account mainly the subject objectives (96%), but also the needs, characteristics and situation of the learners (89%). 88% will take into account their time and effort to design tasks.

The vast majority of respondents (93%) expressed their opinion that the type of e-assessment format depends on learning objectives, 79% - on grading time, and 74% on prevention of cheating and the size of the class, as we can see on Graph 1.
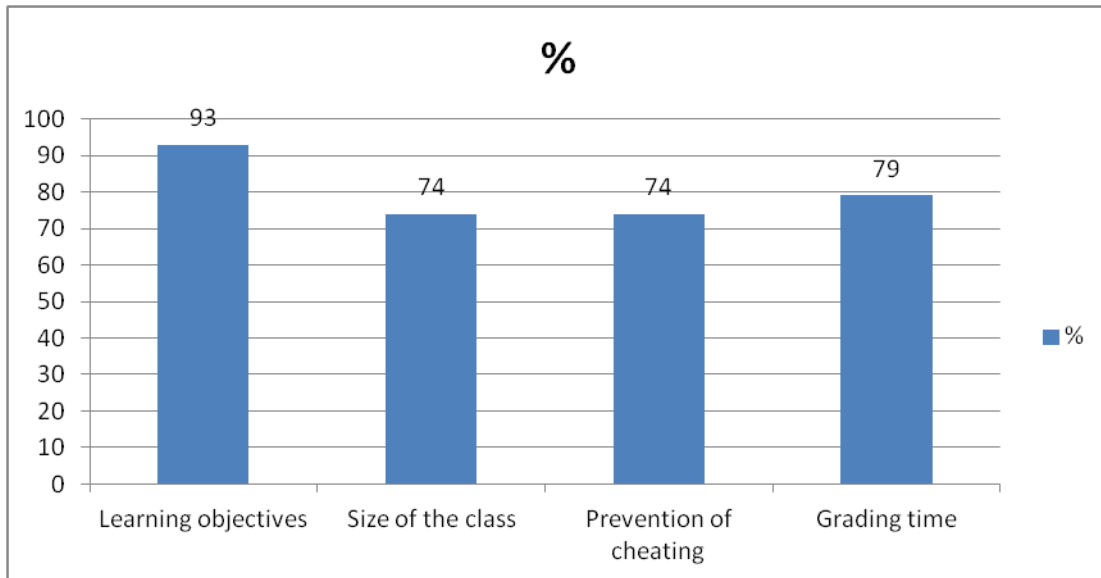
Graph 1: Factors in Selection of Assessment Format

The predominant assessment format in eLearning environment is Multiple Choice Question (MCQ) (50%), while the next format is the Short answer question type (33%). All the other assessment formats gather very low preference percentage.

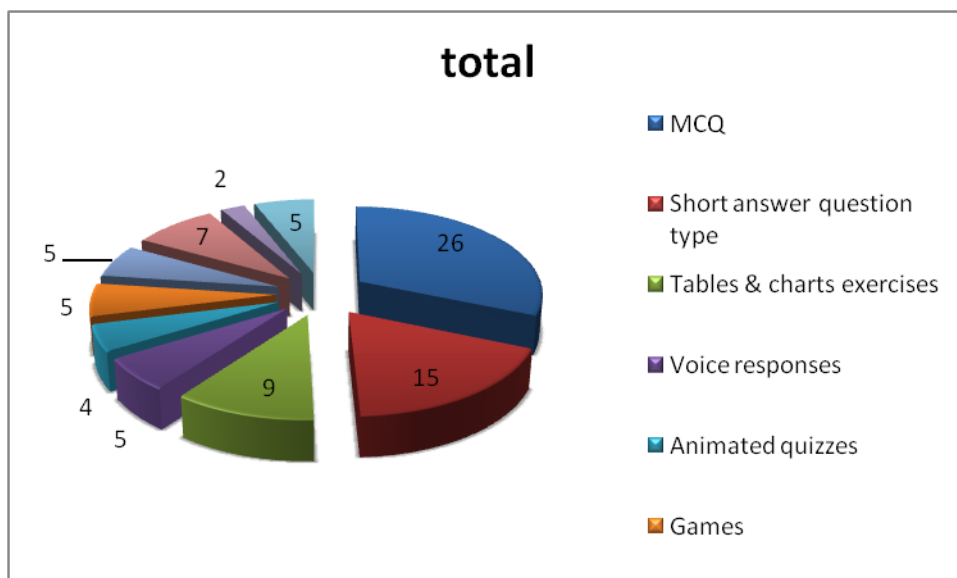| Assessment Format	Percentage (%)
Multiple Choice Question (MCQ)	50
Short answer question type	33
Animated quizzes	7
Sentence builders	5
Games	3
Sliders	2

Table 38: The predominant assessment format in eLearning environment
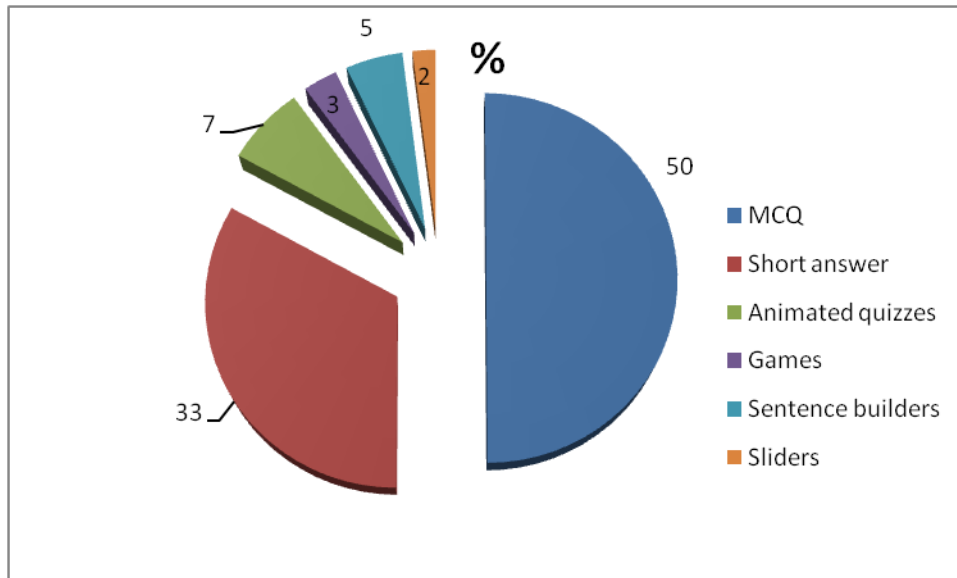
Graph 2: The predominant assessment format in eLearning environment

By eliminating the preferable type of assessment to four, results doesn't change significantly, but increases the percentage of respondents who like to construct tables and charts exercises for assessment.

Graph 3: Preference classification of assessment format in eLearning

Tutors explain why they use those types of assessment and how they think they could be used more effectively:

- MCQ is very effective assessment technique and suits well for both exact sciences and humanities. It often require less time to administer for a given amount of material than

would tests requiring written responses. MCQs do not require a teacher to interpret answers. Majority of respondents consider MCQ to be one of the strongest predictors of overall student performance compared with other forms of evaluation. The most serious disadvantage of MCQ according to the respondents is the limitedness in types of knowledge that can be assessed by using it and a probability of guessing the right answer.

- Short answer question type is good to assess the basic knowledge and understanding of a topic before more in-depth assessment. Unlike MCQs, there is no guessing on answers, an answer must be provided. Short Answer Questions are also relatively easy to set compared to many assessment methods. However Short Answer Questions are typically used for assessing knowledge only, not a deeper learning.

- Tables and charts can be useful tools for helping learners make decisions through the visualization of data. However, learners need to know how to interpret the data and the way it is presented.

- Games have high potential to serve as assessment tools. Game-based assessment can help teachers to personalize learning, to better motivate students, and to instill conceptual understanding and knowledge transfer. Moreover games are attractive and appealing to young learners.

Most of the respondents (62%) measure contribution of the learners to discussion groups, and use the results for formative and supplementary purposes.

Results are more divided for the use of e-portfolio, as evidence of work undertaken, as seen on Table 39, while its use is divided between formal assessment (55%) and other formative and supplementary purposes (45%).

Do you use e-portfolios, as evidence of work undertaken?	Percentage (%)
Yes	51
No	49

Table 39: Measurement usage of e-portfolios

With respect to the tutor's use of different assessment types in eLearning environment, the results show:

- Diagnostic assessment, which means assessment of learner's knowledge and skills at the outset of a course, seldom conduct 57% of the tutors, while 43% of the respondents perform such method of assessment often or always.

- Formative assessment, which provides gradual feedback to learner about his or her progress during lessons. It is applied (usually or always) by 59% of tutors.

- Summative assessment, which takes place at the end of a large chunk of learning, tends to be used by 76% of respondents.

- 13% of respondents indicated using peer-assessment.

3.1.3.2 Learners in Primary and Secondary Education

19 students participated in the research, 11 girls and 8 boys. Majority of them (68%) are students in secondary education (13-15 years old), 10% are students in primary education (under 12 years old) and 22% - in high school studies (16-18 years old).

Age	Percentage (%)	
Under 12	10	
13-15	68	
16-18	22	
Gender	**Total Number**	**Percentage (%)**
Girl	11	58
Boy	8	42
Parents educational level	**Mother (%)**	**Father (%)**
No studies	0	0
Primary education	0	0
Secondary education	1	38
High school studies	0	0
Undergraduate studies	44	0
Graduate studies	50	50
Doctoral degree	0	12

Table 40: Descriptive Data of Primary and Secondary Students

The majority of students' parents have graduate studies.

All respondents have no problems with computer based assignments.

Students recognize as the predominant assessment type in eLearning environment MCQ, short answers, and sentence builders.

Assessment format	Application (%)	Preference (%)
Multiple choice question (MCQ)	42	20
Short answer question type	21	9
Sentence builders	16	9
Tables and charts exercises	0	0
Sliders	5	5
Drag and drop	0	5
Animated quizzes	16	19
Word match	0	9
Voice responses	0	5
Games	0	19

Table 41: Predominant Assessment format
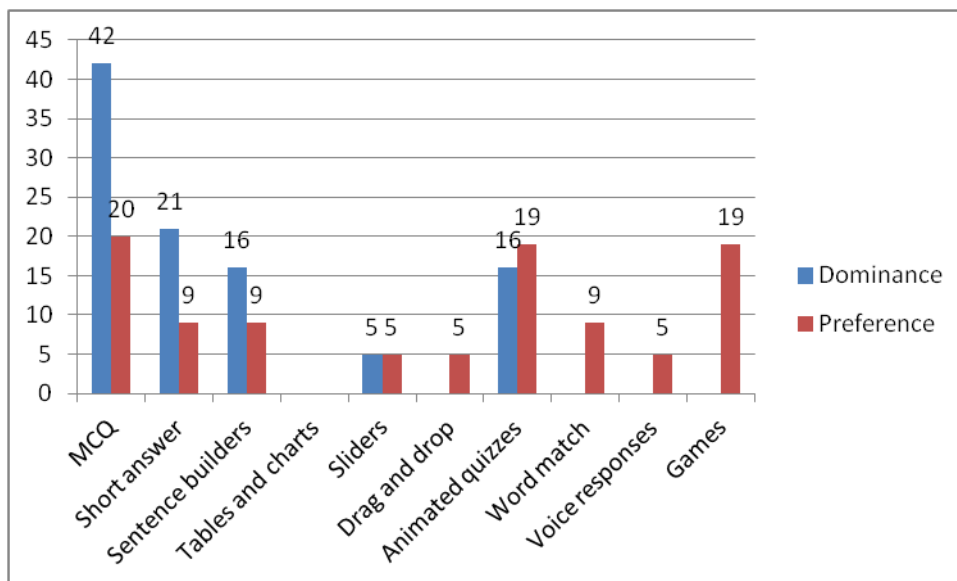
Graph 4: Comparison of preferred and dominating assessment formats in eLearning

As we can see in Table 42 only 1/5 of the students use e-portfolio and none of them believe that its use doesn't provide any help to them at all.

e-portfolio use	Percentage (%)
Yes	21
No	79
e-portfolio usefulness	Percentage (%)
Not much	0
A bit	25
Quite a lot	50
Very much	25

Table 42: Measurement usage of e-portfolios

Although peer-assessment is not very popular method, still 80% of students reported that sometimes they do assess the learning of their peers, while for 20% of respondents it is a usual procedure, and only 16% believes that it is useless.

Peer assessment frequency	Percentage (%)
Never	0
Rarely	80
Usually	20
Always	0
Peer assessment usefulness	Percentage (%)
Not much	16
A bit	21
Quite a lot	58
Very much	5

Table 43: Measurement of peer-assessment

The percentage of students who doesn't pay attention on feedback is very low (5%). Almost half of them (47%) read feedback carefully in the case of a good and of a bad mark as well, while 42% of respondents pay more attention to a negative feedback.

3.1.3.3 Learners in Higher and Adult Education

The vast majority (96%) of learners who have completed the research questionnaire are students from different Lithuanian universities and colleges, while only 7% attend an Adult Education program.

The majority of the learners (86%) are aged less than 25 years old.

Age	Percentage (%)
Under 25	86
25-29	4
30-39	5
40-49	1
50-59	3
60+	1

Table 44: Participants Learners' Age

91% of the respondents are women, a fact that should be further researched as about relevance with other variables. It could be related to the fact that the share of females in tertiary education now exceeds 58% in Lithuania. Another reason could be that female students are more dutiful and persevering in their studies, more self-disciplined, thus more actively participated in the survey.

71% of respondents stated that their financial condition is about the average, 21% - below average, and 7% reported their income as high.

48% of respondents are not working, and 52% work and study at the same time. 25% of all working respondents are in full-time jobs, while the rest 75% are part-time or seasonal workers.

Only 9% of all respondents reported about being not comfortable with computer based assignments.

The MCQ and Short answer question types were recognized by the surveyed students as the predominant assessment type in their eLearning environment. This information more or less correlates with the data obtained from the tutors' responses.

Assessment format	Application (%)	Preference (%)
Multiple choice question (MCQ)	42	31
Short answer question type	27	30
Sentence builders	6	4
Tables and charts exercises	11	11
Sliders	8	1
Drag and drop	0	0
Animated quizzes	2	11
Word match	4	1
Voice responses	0	4
Games	0	7

Table 45: Predominant Assessment format

19% of surveyed students reported that e-portfolios are used in the respective higher education institutions. All respondents using this tool reported that the use of e-portfolio help them to learn.

Generally, peer-assessment is not a common assessment method, since it is never used by 69% of the respondents. Still 47% of all respondents are of the opinion that this method helps them to learn very much and quite a lot.

22% of respondents reported that they have access to tools enabling them to make judgments about their learning or performance level.

When asked about the use of a feedback in e-learning environment 64% of respondents confirmed that read it carefully regardless of the feedback results. The vast majority of respondents (85%) believe that the feedback is a valuable tool to support learning.

3.1.3.4 Learners in VET

In the research 24 students in Vocational Education and Training (VET) have taken part. Almost all of them are under 29 years old, 37% are women and only 37% of them are currently working. 58% are having an incomplete secondary education, and 59% state that their socioeconomic status is about the average, as we can see on Table 46.

The vast majority of participants (87%) are comfortable with computer based assignments.

AGE	PERCENTAGE (%)
Under 25	96
30-39	4
40-49	0
GENDER	**PERCENTAGE (%)**
Woman	37
Man	63
EDUCATIONAL LEVEL	**PERCENTAGE (%)**
No formal education	4
Some elementary education	4
Some secondary education	58
Secondary school completed	30
Other than university degree	4
SOCIOECONOMIC STATUS	**PERCENTAGE (%)**
High	19
Middle	59
Low	22
EMPLOYMENT	**PERCENTAGE (%)**
Yes	39
No	61

Table 46: Descriptive Data of Students in VET (continued on next page)

Are you comfortable with computer based assignments?	PERCENTAGE (%)
Yes	87
No	13

Table 47: Descriptive Data of Students in VET

The predominant assessment format in eLearning environment is Multiple Choice Question (MCQ) (30%), while the next formats are the Tables and charts exercises, the Short answer questions and the Games.

ASSESSMENT FORMAT	Predominant Assessment format (%)	Preferable assessment format (%)
Multiple choice question (MCQ)	30	14
Short answer question type	14	21
Drag and drop	4	11
Tables and charts exercises	22	6
Games	14	9
Word match	4	8
Animated quizzes	4	8
Sentence builders	4	5
Sliders	4	9
Voice responses	0	9

Table 48: Predominant and Preference classification of assessment format

in eLearning

Student's responses, as presented on Table 49, about the use of the learner's e-portfolio are relevant. 30% of respondents use this medium of personal learning recording, while the 75% believes that its use doesn't provide much help.

Peer-assessment is not a common method, since it has never been used by the 52% of the participants, while another 43% responded that they rarely used it.

Half of the surveyed students responded as having access to tools that enable them to make judgments about their own learning or performance level.

e-portfolio use	PERCENTAGE (%)
Yes	30
No	70
e-portfolio usefulness	**PERCENTAGE (%)**
Not much	25
A bit	50
Quite a lot	17
Very much	8
Peer assessment frequency	**PERCENTAGE (%)**
Never	52
Rarely	43
Usually	5
Always	0
Peer-assessment usefulness	**PERCENTAGE (%)**
Not much	52
A bit	24
Quite a lot	24
Very much	0
Access to tools that enable them to make judgments about their own learning or performance level	**PERCENTAGE %)**
Yes	50
No	50

Table 49: e-portfolio, peer-assessment, and access to self -assessment judgement tools

With respect to the student's in VET data, the vast majority during assignments on computer are concentrated on both understanding the subject, and on passing the exam.

During assignments on computer:	PERCENTAGE (%)
You concentrate on passing the exam	50
You concentrate on understanding the subject	50
How carefully do you read feedback in elearning environment?	**PERCENTAGE (%)**
A bit	11
Quite a lot	32
Very much	57
You read feedback more carefully in the case of:	**PERCENTAGE (%)**
A good mark	36
A bad mark	23
Both cases	38
In what extent feedback helps you to unterstand and learn in elearning environment?	**PERCENTAGE (%)**
A bit	15
Quite a lot	35
Very much	50
How frequently feedback prompts discussion with your tutor in elearning environment?	**PERCENTAGE (%)**
Rarely	90
Usually	10

Table 50: Feedback

3.1.4 The Case of Greece

This section summarizes the results of the survey that has been conducted by Adamantia Spanaka, Dimitra Angelopoulou and Achileas Kameas (*Hellenic Open University)* in the case of Greece.

3.1.4.1 Tutors

In the research 60 tutors have taken part. Most of them are tutors in Open and Distance Learning University (33%) or in conventional University (25%) as Table 51 shows.

TUTORS' LEVEL OF EDUCATION	Total Number	Percentage (%)
Primary Education	4	7
Secondary Education	6	10
VET	8	13
Conventional University	15	25
Open and Distance Learning University	20	33
Adult Education	7	12

Table 51. Number of Tutor Participants

All the tutors (100%) consider that assessment method should give emphasis on eLearning and then rethinking of curriculum (93%). On the other hand, most tutors -regardless the level of education they work for (based on X^2 test)-considers that an assessment method in eLearning environment supports Higher order thinking (78%), while a few less believes that an assessment method supports social skills and group work (61-63%).

Tutors in order to enhance the learning experience through assessment, they take into account mainly the subjects objectives, but also the needs, characteristics and situation of the learners. Their time and effort to design tasks have in mind the 2/3 of tutors, according to statistical test X^2. There is also a comment about taking concern the learner's level of computer literacy, which could be taken for granted in the case of typical learning, but not in the case of adult education.

As about the selection of the type of assessment format, the vast majority of tutors (97%) depends it on learning objectives and on grading time (73%), on prevention of cheating student (66%) or on the size of the class (58%), as we can see on Graph 5.
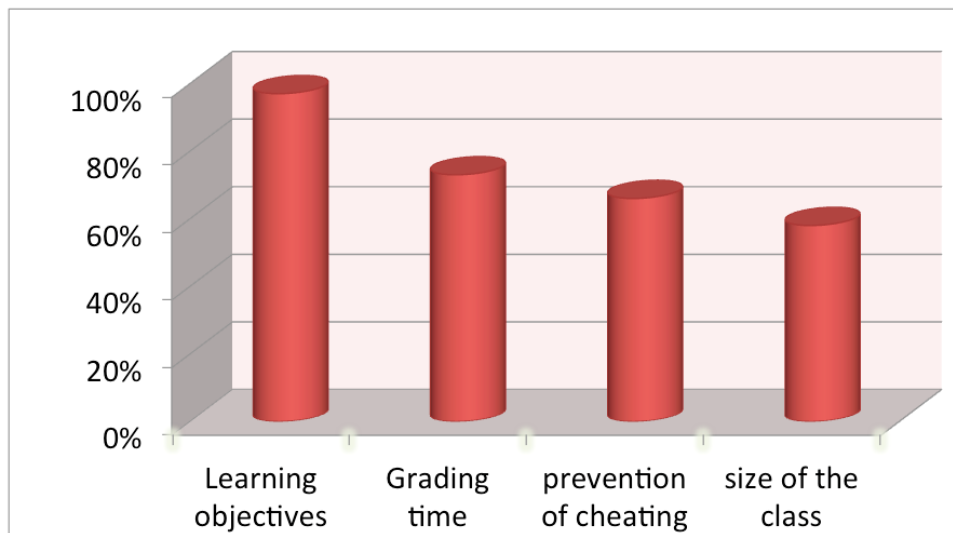
Graph 5: Factors in Selection of Assessment Format

In Greece, the X^2 test of statistical significance, shows a differentiation in the level of agreement of a tutor according to his teaching grade position to the hypothesis that the assessment method depends on the learning goals. The higher the tutors teaching grade, the higher the percentage of those who strongly agree that the selection of the type of assessment format depends on learning objectives.

The predominant assessment format in eLearning environment is Multiple Choice Question (MCQ) (59%), while the next format is the Short answer question type. All the other assessment formats gather very low preference percentage, while X^2 test of statistical significance shows that there is no relevance with tutor's teaching grade.

Assessment Format	Percentage (%)
Multiple Choice Question (MCQ)	59
Short answer question type	18
Sentence builders	3
Tables and charts exercises	6
Voice responses	3
Sliders	3
Word match	6
Games	3

Table 52: The predominant assessment format in eLearning environment
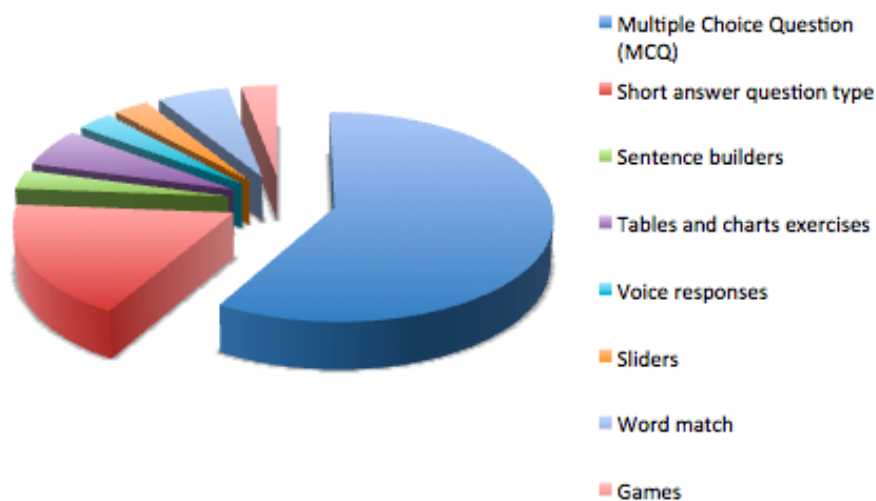
Graph 6: The predominant assessment format in eLearning environment

Other predominant e-assessment format that some tutors use is e-portfolio, essay and written assignments.

By eliminating the preferable type of assessment to four, results doesn't change significantly, but increases the percentage of tutors who like to use tables and charts exercises for assessment. Additionally, some tutors comment that they prefer to construct other types of assessment, as e-

portfolio (in primary education), assignments (conventional university), case studies, Wiki assignments and participation assessment in the lesson's forum.

Assessment Format	Selection of the 4 most preferable assessment formats
Multiple choice question (MCQ)	25
Short answer question type	21
Games	8
Tables and charts exercises	15
Drag and drop	6
Sentence builders	7
Sliders	2
Voice responses	5
Animated quizzes	2
Word match	8

Table 53: Preference classification of assessment format in eLearning

Tutors explain why they use those types of assessment and how they think they could be used more effectively:

- MCQ is a more functional format of assessment and suits better for some learners (for example, working men). Additional, MCQs' may be more focused and objective as well in a elearning environment, and they are familiar to adult learners. Tutors consider that they promote active participation in education and provide better material comprehension.

- Short answer question type develops critical thought, demand clarity in the answer and test the learner's expression ability and assist him in developing a personal writing style. It is also a type which prevents cheating.

- Games are more attractive, more interactive and more flexible way of assessment, while experience and practice incorporation are achieved effectively in a way which activate multiple skills.

- Tables and charts exercises help for better data visualization.

Totally, a lot of tutors select to use many different formats of assessment, because they consider that –by this manner- final results are more safe, objective and reliable, while assessment can be more interested if it uses games.

An indirect assessment mode of the learner's study process is also measuring his contribution in forum, used by the vast majority of tutors (76%).

Results are more divided for the use of e-portfolio, as evidence of work undertaken, as seen on Table 54, while its use is divided between formal assessment (44%) and other formative and supplementary purposes (56%).

Do you use e-portfolios, as evidence of work undertaken?	Percentage (%)
Yes	37
No	63

Table 54: Measurement usage of e-portfolios

With respect to the tutor's use of different assessment methods in eLearning environment, the results show:

- Diagnostic assessment, which means assessment of learner's knowledge and skills at the outset of a course, seldom conduct half of the tutors, while only the 13% perform such method of assessment. This is a very significant result, especially for adult education. This is an important part of teaching management and should be taken in mind in designing the learning material.

- Formative assessment, which provides gradual feedback to learner about his or her progress during lessons. It is applied (usually or always) by about the 60% of tutors.

- Summative assessment, after the lessons have been concluded. It is preferred by the vast majority of tutors, while only the 8% don't ever use this kind of assessment.

- It is interesting that almost one to five tutors conducts always peer-assessment, and that only 36% of tutors usually use peer-assessment.

There is an interesting interrelation between tutors choices to use summative assessment and peer assessment. The less a tutor use peer assessment, accordingly the less he uses and summative assessment. So, the 67% of those who never perform peer-assessment, do not go on to final assessment.

3.1.4.3 Learners in Primary and Secondary Education

In the research 47 students, 25 boys and 22 girls have taken part. Half of them are students in secondary education (13-15 years old), while the rest of them are students in primary education (under 12 years old) and in high school studies (16-18 years old).

Age	Percentage (%)	
Under 12	29	
13-15	48	
16-18	23	
Gender	**Total Number**	**Percentage (%)**
Girl	22	47
Boy	25	53
Parents educational level	**Father (%)**	**Mother (%)**
No studies	2	6
Primary education	8	13
Secondary education	10	33
High school studies	31	38
Undergraduate studies	31	8
Graduate studies	10	2
Doctoral degree	6	6

Table 55: Descriptive Data of Students Descriptive Data

The majority of students' parents have high school studies. It is interesting that the higher the educational level of the mother, the higher the educational level of the father, as we can see in graph 7.
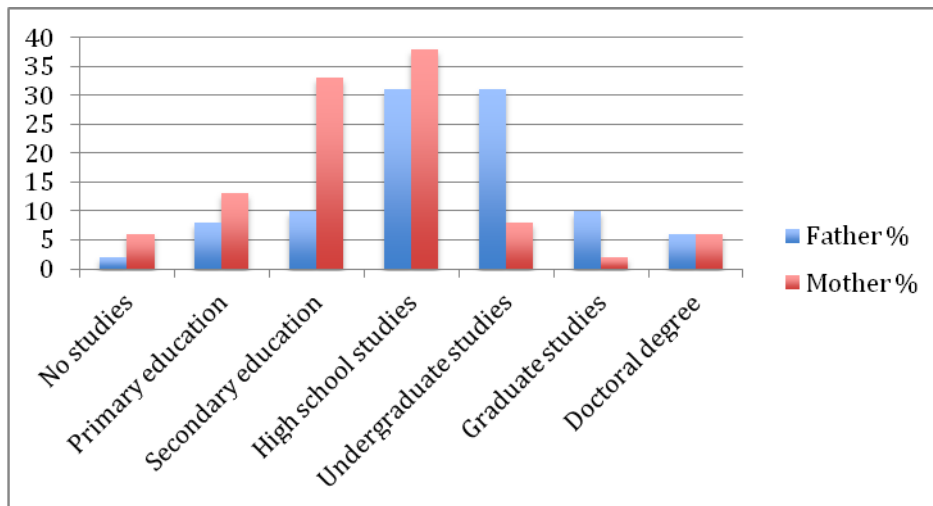
Graph 7: Educational Level of Parents

The vast majority of the students (92%) are comfortable with computer based assignments. Students recognize as the predominant assessment type in eLearning environment MCQ, short answers, games and in lower percentage the rest of the assessment question types.

Assessment format	Application (%)	Preference (%)
Multiple choice question (MCQ)	43	38
Short answer question type	22	12
Sentence builders	14	21
Tables and charts exercises	6	9
Sliders	6	5
Drag and drop	3	4
Animated quizzes	3	5
Word match	1	3
Voice responses	1	1
Games	1	1

Table 56: Predominant Assessment format

As we can see in Table 57 almost half of the student use e-portfolio and from them only 5% believes that its use doesn't provide any help to them at all.

e-portfolio use	Percentage (%)
Yes	46
No	55
e-portfolio usefulness	Percentage (%)
Not much	52 (5)
A bit	5 (10)
Quite a lot	25 (50)
Very much	18 (35)

Table 57: Measurement usage of e-portfolios

Peer-assessment is not a common method, since it has never been used by the 55% of the participants, and 52% believes that it is useless.

Peer assessment frequency	Percentage (%)
Never	25
Rarely	23
Usually	41
Always	11
Peer assessment usefulness	Percentage (%)
Not much	7
A bit	26
Quite a lot	44
Very much	23

Table 58: Measurement of peer-assessment

The percentage of students who doesn't pay attention on feedback is very low (7%). Most of them (84%) read feedback carefully in the case of a good and of a bad mark as well, as we can see on Table 59.

Attention on feedback	Percentage (%)
Not much	7
A bit	12
Quite a lot	49
Very much	33
You read feedback more carefully in the case of:	Percentage (%)
A good mark	9
A bad mark	7
Both cases	84
In what extent feedback helps you to understand and learn in elearning environment?	Percentage (%)
Not much	7
A bit	10
Quite a lot	57
Very much	26

Table 59: Measurement of Feedback

Age is a significant factor in students answers. 13-15 years old students are fully comfortable with computer based assignments. But, three out of four 16-18 years old students, are not fully comfortable with computer based assignments.

		Are you comfortable with computer based assignments?		
		YES %	NO %	TOTAL %
AGE	Under 12	30	25	29
	13 -15	52	-	48
	16 -18	18	75	23
TOTAL		100	100	100

Table 60: Age and Computer based assignments Cross tabulation

Almost half of the students use e-portfolio, and from them 60% are students in primary education.

		Do you use e-portfolio?		
		YES %	NO %	TOTAL %
AGE	Under 12	60	4	30
	13 -15	30	63	48
	16 -18	10	33	23
TOTAL		100	100	100

Table 61: Age and the use of e-portfolios Cross tabulation

Also, the younger the students, the bigger the help that they believe that can receive from the e-portfolio.

		If Yes, how much e-portfolio help you learn?				TOTAL
		Not much	A bit	Quite a lot	Very much	%
AGE	Under 12	4	50	55	63	30
	13 -15	65	50	27	25	48
	16 -18	30	-	18	13	23
TOTAL			100	100	100	100

a. 8 cells (66,7%) have expected count less than 5. The minimum expected count is ,45.

Table 62: Age and the help from e-portfolios Crosstabulation

Furthermore, according to data, the older the students the more rearly they use peer-assessment.

		How often do you assess the learning of your peer (*peer-assessment*) in elearning environment?				
		Never	Rarely	Usually	Always	TOTAL %
AGE	Under 12	9	40	44	-	30
	13 -15	36	40	44	100	48
	16 -18	55	20	11	-	23

TOTAL	100	100	100	100	100

a. 9 cells (75,0%) have expected count less than 5. The minimum expected count is 1,14.

Table 63: Age and Peer-assessment Crosstabulation

Additionally, the older the students the less access they get to tools that enable them to make judgements about their own learning or performance level.

		Do you have access to tools that enable you to make judgements about your own learning or performance level?		TOTAL
		YES	NO	%
AGE	Under 12	37	18	30
	13 -15	56	35	48
	16 -18	7	47	23
TOTAL			100	100

a. 1 cells (16,7%) have expected count less than 5. The minimum expected count is 3,86.

Table 64: Age and self-assessment judgement tools

Cross tabulation

The 84% of the students read feedback regardless the mark, but in the case of a bad mark high school students read feedback more carefully.

		You read feedback more carefully in the case of:			TOTAL
		A good mark	A bad mark	Both cases	%
AGE	Under 12		-	36	30
	13 -15	75	-	47	47
	16 -18	25	100	17	23
TOTAL			100	100	100

a. 6 cells (66,7%) have expected count less than 5. The minimum expected count is 3,70.

Table 65: Age and Feedback Crosstabulation

Furthermore, as students pay more attention on feedback, the level of the help that feedback gives back to them, in order to understand and learn in eLearning environment, is bigger.

Students responses, as presented on Table 21 underline that Voice responses and Tables and charts exercises have been chosen only by 16-18 years old students, while animated quizzes and Word match have been chosen only by 13-15 years old students.

PREDOMINANT ASSESSMENT FORMAT	AGE		
	Under 12	13 -15	16 -18
Multiple choice question (MCQ)	22	54	24
Short answer question type	40	20	40
Sentence builders	0	84	16
Tables and charts exercises	0	0	**100**
Sliders	40	40	20
Drag and drop	33	67	0
Animated quizzes	0	**100**	0
Word match	0	**100**	0
Voice responses	0	0	**100**
Games	42	25	33

Table 66: Age and Predominant Assessment Format Crosstabulation

Totally, all students who have been chosen Tables and charts exercises were girls and also, mainly girls have been chosen Voice responses, Drag and drop and Games as their preferable e-assessment format.

	GENDER	
PREDOMINANT ASSESSMENT FORMAT	GIRL	BOY
Multiple choice question (MCQ)	43	57
Short answer question type	60	40
Sentence builders	47	53
Tables and charts exercises	**100**	0
Sliders	40	60
Drag and drop	**67**	33

Table 67: Gender and Predominant Assessment Format Cross tabulation

PREDOMINANT ASSESSMENT FORMAT	GENDER	
	GIRL	BOY
Animated quizzes	0	100
Word match	0	100
Voice responses	**67**	33
Games	**58**	42

Table 68: Gender and Predominant Assessment Format Cross tabulation

3.1.4.3 Learners in Higher and Adult Education

The vast majority (96%) of learners who have completed the research questionnaire are students from Open and Distance Learning University, while only 3% attend an Adult Education program, and 1% study in a conventional one.

Studies	Percentage (%)
Conventional University	1
Open and Distance Learning University	96
Adult Learning Program	3

Table 69: Number of Learners in Higher & Adult Education Participants

Almost half of the learners are aged between 30 to 39 years old, while 34% are 40-49 years old. In total about 10% are below 30 or over 50. These numbers are an indication that those who attend ODL programmes are usually in their most productive age and usually attend a relevant program to their occupation –more determined in their decision to study and more committed to learning, although the X^2 test of significance didn't show any kind of relation between age and the type of education where they study.

Age	Percentage (%)
Under 25	1
25-29	8
30-39	47
40-49	34
50-59	9
60+	1

Table 70: Participants Learners' Age

Two out of 3 learners are women (63%), a fact that should be further researched as about relevance with other variables. It could be related to the fact that women are less possible to find

a job and when they do, they usually get a lower payment. Another reason could be that they didn't have a chance of studying earlier due to social, economical or other reasons.

In fact, the X^2 test of significance shows a relevance between financial condition and the gender of the student, since 2 out of 3 participants who stated that their financial condition is about the average are women, while on the other categories we notice relatively small percentage differences.

Also, from those who defined themselves as unemployed, 73% are women and the overall percentage of women who work for less hours are smaller than the men's ones. Very few say that their financial condition is high, while most of participants (71% in Greece place themselves in the middle financial class). There is also a significant percentage which characterizes their financials as poor. Of course, there is a relation (X^2 test of significance) between family condition stated by the learners and their occupation, as well as the kind of occupation (full time, occasional, part-time work).

Socioeconomic Status	Percentage (%)
High	3
Middle	71
Low	26

Table 71: Participants Learners' Socioeconomic Status

There is a high percentage of those who work (77%), while 83% are full-time workers, as seen on the Table 72.

Are you currently working?	Percentage (%)
Yes	77
No	23
Type of work	**Percentage (%)**
Part-time	9
Occasional/seasonal	9

Full-time	83

Table 72: Participants Learners' Status of Work

Learners recognize as the predominant assessment type in eLearning environment MCQ and short answers. It is interesting that according to students, the other types of assessment are practically not used, something that rises question if is combined with the tutors' answers. For instance, 10% of tutors have mentioned that uses games for assessment, while there was a negligible percentage (only 3 out of 813 learners) stated the use of games as any assessment medium. All the other answers for assessment are in agreement. Hellenic Open University (HOU) doesn't use e-assessment, but conventional ones. The only thing that HOU supports online is communication, library facilities and forums.

Assessment format	Application (%)	Preference (%)
Multiple choice question (MCQ)	65	52
Short answer question type	23	22
Sentence builders	6	4
Tables and charts exercises	2	6
Sliders	2	2
Drag and drop	1	3
Animated quizzes	1	2
Word match	0	4
Voice responses	0	2
Games	0	2

Table 73: Predominant Assessment format

Students responses, about the use of the learner's e-portfolio are relevant. Only the 8% use this medium of personal learning recording are supported by reflectional activities, while the 41% believes that its use doesn't provide any help at all.

Generally, peer-assessment is not a common method, since it has never been used by the 67% of the participants, and 48% believes that it is useless.

On the other hand, the 31% of the participants believe that this type of assessment helps them quite a lot or very much.

3.1.4.4 Learners in VET

In the research 29 students in Vocational Education and Training (VET) have taken part. Most of them are under 30 years old, 2 out of 3 are women and almost all of them (97%) are currently working, are having a University degree and state that their socioeconomic status is about the average, as we can see on Table 74.

The vast majority of participants employ 16+hrs each week and all of them are comfortable with computer based assignments.

AGE	PERCENTAGE (%)
25-29	14
30-39	59
40-49	28
GENDER	PERCENTAGE (%)
Woman	62
Man	38
EDUCATIONAL LEVEL	PERCENTAGE (%)
Elementary education completed	3
University degree	97
SOCIOECONOMIC STATUS	PERCENTAGE (%)
High	7
Middle	83
Low	10
EMPLOYMENT	PERCENTAGE (%)
Yes	97
No	3

Table 74: Descriptive Data of Students in VET

TYPE OF WORK	PERCENTAGE (%)
Part-time work	7
Occasional/seasonal work	14
Full-time work	79
WORK HOURS PER WEEK	**PERCENTAGE (%)**
None	3
1-10 hrs	7
16+ hrs	90
Are you comfortable with computer based assignments?	**PERCENTAGE (%)**
Yes	100

Table 75: Descriptive Data of Students in VET

The predominant assessment format in eLearning environment is Multiple Choice Question (MCQ) (59%), while the next format is the Short answer question type, the Drag and drop and the Tables and charts exercises.

By eliminating the preferable type of assessment to four, results do not change significantly, but increases the percentage of tutors who like to use short answer question type, games, word match and sentence builders for assessment, in very low percentage as we can see on Table 24.

ASSESSMENT FORMAT	Predominant Assessment format (%)	Preferable assessment format (%)
Multiple choice question (MCQ)	80	50
Short answer question type	8	18
Drag and drop	8	5
Tables and charts exercises	4	7
Games		9
Word match		7
Sentence builders		2
Sliders		2

Table 76: Predominant and Preference classification of assessment format in eLearning

Students responses, as presented on Table 77, about the use of the learner's e-portfolio are relevant. Only the 15% use this medium of personal learning recording are supported by reflectional activities, while the 66% believes that its use doesn't provide any help at all or a bit.

Peer-assessment is not a common method, since it has never been used by the 33% of the participants, while another 33% response that they rarely used it. Furthermore, results are almost divided according to the use students in VET believe they get from this type of assessment, as seen on Table 77.

There is a significant percentage (63%) of the students who have access to tools that enable them to make judgements about their own learning or performance level.

e-portfolio use	PERCENTAGE (%)
Yes	15
No	85
e-portfolio usefulness	**PERCENTAGE (%)**
Not much	33
A bit	33
Quite a lot	17
Very much	17
Peer assessment frequency	**PERCENTAGE (%)**
Never	33
Rarely	33
Usually	29
Always	4
Peer-assessment usefulness	**PERCENTAGE (%)**
Not much	30
A bit	25
Quite a lot	40
Very much	5

Table 77: e-portfolio, peer-assessment, and access to self -assessment judgement tools

Access to tools that enable them to make judgements about their own learning or performance level	PERCENTAGE %)
Yes	63
No	38

Table 78: e-portfolio, peer-assessment, and access to self -assessment judgement tools

With respect to the student's in VET data, the vast majority during assignments on computer are more concentrate on understanding the subject, than on passing the exam.

During assignments on computer:	PERCENTAGE (%)
You concentrate on passing the exam	22
You concentrate on understanding the subject	78
How carefully do you read feedback in elearning environment?	PERCENTAGE (%)
A bit	14
Quite a lot	45
Very much	41
You read feedback more carefully in the case of:	PERCENTAGE (%)
A good mark	14
A bad mark	86
In what extent feedback helps you to understand and learn in elearning environment?	PERCENTAGE (%)
A bit	5
Quite a lot	50
Very much	45

Table 79: Feedback

How frequently feedback prompts discussion with your tutor in elearning environment?	PERCENTAGE (%)
Rarely	50
Usually	50

Table 80: Feedback

PART II

SECOND ORDER COMPARATIVE DATA ANALYSIS

4.1 Tutors

In the research totally 200 tutors from Greece and Lithuania have taken part. Most of them are tutors in Open and Distance Learning and in Conventional University.

TUTORS' LEVEL OF EDUCATION	EL	LT
Primary Education	7	3
Secondary Education	10	6
VET	13	7
Conventional University	25	82
Open and Distance Learning University	33	
Adult Education	12	2
emphasis on	**EL**	**LT**
e- learning	100	90
rethinking of curriculum	93	81
encourage technology	92	78
supports	**EL**	**LT**
higher order thinking	78	68
social skills	63	52
group work	61	24
take into account	**EL**	**LT**
subject objectives	97	96
needs, characteristics and situation of learners	96	89
their time and effort to design tasks	65	88

Table 81: Tutors' Level of Education

In the case of Greece there is also a comment about taking concern the learner's level of computer literacy, which could be taken for granted in the case of typical learning, but not in the case of adult education. In the case of Lithuania, generally results are the same, since the vast majority (90%) believes that assessment method should give emphasis on eLearning and then rethinking of curriculum (81%). Results are different in Lithuania according to what they believe that assessment method supports: The 68% concerns higher order thinking, 52% social skills and 27% group work.

Selection of type depends on:	EL	LT
learning objectives	97	93
grading time	73	79
prevention of cheating	66	74
size of class	58	74

Table 82: Reasons for selection of assessment format

As about the selection of the type of assessment format the vast majority of tutors depends it on learning objectives and on grading time, on prevention of cheating or on the size of the class.

But in Greece, the X^2 test of statistical significance shows a differentiation in the level of agreement of a tutor according to his teaching grade position to the hypothesis that the assessment method depends on the learning goals. The higher the tutors teaching grade, the higher the percentage of those who strongly agree that the selection of the type of assessment format depends on learning objectives.

Assessment Format	EL	LT
Multiple choice question (MCQ)	59	50
Short answer question type	18	33
Games	3	3
Tables and charts exercises	6	-
Drag and drop	-	-
Sentence builders	3	5
Sliders	3	2
Voice responses	3	-
Animated quizzes	-	7
Word match	6	-

Table 83: Assessment format

In the case of Greece X^2 test of statistical significance shows that there is no relevance with tutor's teaching grade**.** By eliminating the preferable type of assessment to four, results doesn't

change significantly, but increases the percentage of tutors who like to use tables and charts exercises for assessment.

Additionally (in the case of Greece), some tutors comment that they prefer to construct other types of assessment, as e-portfolio (in primary education), assignments (conventional university), case studies, Wiki assignments and participation assessment in the lesson's forum. In Lithuania, the predominant format of assessment in eLearning is MCQ while the next format is the Short answer question type, almost double than Greece.

Tutors explain why they use those types of assessment and how they think they could be used more effectively:

- **MCQ** is very effective and a more functional format of assessment and suits well for both exact sciences and humanities and suits better for some learners (for example, working men). It often require less time to administer for a given amount of material than would tests requiring written responses. MCQs do not require a teacher to interpret answers and can be more focused and objective in an eLearning environment, and they are familiar to adult learners. So, tutors consider that they promote active participation in education and provide better material comprehension. Majority of tutors consider MCQ to be one of the strongest predictors of overall student performance compared with other forms of evaluation and they promote active participation in education and provide better material comprehension. The most serious disadvantage of MCQ according to the respondents is the limitedness in types of knowledge that can be assessed by using it and a probability of guessing the right answer.

- **Short answer question type** considered good to assess the basic knowledge and understanding of a topic before more in-depth assessment and also develop critical thought, demand clarity in the answer, test the learner's expression ability and assists him in developing a personal writing style. It is a type which prevents cheating and guessing and relatively easy to set in comparison to many assessment methods.

- **Games** are more attractive, more interactive and more flexible way of assessment, while experience and practice incorporation are achieved effectively in a way which activate multiple skills. Game-based assessment can help teachers to personalize learning, to better motivate students, and to instill conceptual understanding and knowledge transfer.

- **Tables and charts exercises** help for better data visualization. However, learners need to know how to interpret the data and the way it is presented.

Finally, a lot of tutors select to use many different formats of assessment, because they consider that –by this manner- final results are more safe, objective and reliable, while assessment can be more interested if it uses games.

Measure the contribution in forum	EL	LT
Yes	76	62
No	24	38

Table 84: Measure the contribution in forum

The majority of tutors measure contribution of the learners to discussion groups.

Do you use e-portfolios, as evidence of work undertaken?	EL	LT
Yes	37	51
No	63	49

Table 85: e-portfolio

Results are more divided for the use of e-portfolio as evidence of work undertaken, since no more than half the tutors use it, while its use is divided between formal assessment and other formative and supplementary purposes.

With respect to the tutor's use of different assessment methods in eLearning environment, the results show:

- **Diagnostic assessment,** which means assessment of learner's knowledge and skills at the outset of a course, is conducted by half of the tutors and the proportion of them performing this method often or always varies considerable (13 − 43%). This is a very significant result, especially for adult education. This is an important part of teaching management and should be taken in mind in designing the learning material.

- **Formative assessment,** which provides gradual feedback to learner about his or her progress during lessons is applied (usually or always) by about the 60% of tutors.

- **Summative assessment,** after the lessons have been concluded is preferred by the vast majority of tutors.

- **Peer-assessment,** the proportion of tutors performing this method is low (13-36%).

4.2 Learners in Primary and Secondary Education

In the research totally 200 learners in Primary and Secondary Education from Greece and Lithuania have taken part.

Age	EL	LT
Under 12	29	10
13-15	48	68
16-18	23	22
Gender	**EL**	**LT**
Girl	47	58
Boy	53	42

Table 85: e-portfolio

In the case of Greece age is a significant factor in students' answers. 13-15 years old students are fully comfortable with computer based assignments. But, three out of four 16-18 years old students are not fully comfortable with computer based assignments

Most pupils are in secondary school and are halved in boys and girls.

| Parents educational level | EL | | LT | |
	Father (%)	Mother (%)	Father (%)	Mother (%)
No studies	2	6	0	0
Primary education	8	13	0	0
Secondary education	10	33	1	38
High school studies	31	38	0	0
Undergraduate studies	31	8	44	0
Graduate studies	10	2	50	50
Doctoral degree	6	6	0	12

Table 86: Parents educational level

The majority of students' parents (in Greece) have high school studies. It is interesting that the higher the educational level of the mother, the higher the educational level of the father

The majority of students' parents have high school studies in Greece and graduate studies in Lithuania.

comfortable with computer based assignments	EL	LT
Yes	92	100
No	8	0

Table 87: Comfortable with computer based assignments

There is a small part of the population in Greece that is still not comfortable with computer based assignments.

Assessment format	EL		LT	
	Application (%)	Preference (%)	Application (%)	Preference (%)
Multiple choice question (MCQ)	43	38	42	20
Short answer question type	22	12	21	9
Sentence builders	14	21	16	9
Tables and charts exercises	6	9	0	0
Sliders	6	5	5	5
Drag and drop	3	4	0	5
Animated quizzes	3	5	16	19
Word match	1	3	0	9
Voice responses	1	1	0	5
Games	1	1	0	19

Table 88: Application and Preference of Assessment format

Multiple Choice Questions are both the predominant and the preferred assessment format followed by Short Answer question type, sentence builders and tables and charts exercises. Moreover, contingency tables from Greek data show that Voice responses and Tables and charts exercises have been chosen only by 16-18 years old students, while animated quizzes and Word match have been chosen only by 13-15 years old students. Finally, all students who have been chosen Tables and charts exercises were girls and also, mainly girls have been chosen Voice responses, Drag and drop and Games as their preferable e-assessment format.

e-portfolio use	EL	LT
Yes	46	21
No	55	79
e-portfolio usefulness	EL	LT
Not much	52 (5)	0
A bit	5 (10)	25
Quite a lot	25 (50)	50
Very much	18 (35)	25

In brackets are the percentages from those who actually use eportfolio.

Table 89: Use and Usefulness of e-portfolio

In Greece, almost half of the pupils use e-portfolio and from them only 5% believes that its use doesn't provide any help to them at all.

Almost half of the Greek students use e-portfolio while in Lithuania only 20% of pupils use it, even though they believe it is quite helpful.

Peer assessment frequency	EL	LT
Never	25	0
Rarely	23	80
Usually	41	20
Always	11	0
Peer assessment usefulness	EL	LT
Not much	7	16
A bit	26	21
Quite a lot	44	58
Very much	23	5

Table 90: Frequency and usefulness of peer assessment

Peer assessment is not a common method even though more than 50% believe it is quite useful.

Attention on feedback	EL	LT
Not much	7	
A bit	12	
Quite a lot	49	
Very much	33	
You read feedback more carefully in the case of:	EL	LT
A good mark	9	
A bad mark	7	
Both cases	84	

Feedback helps you to understand and learn in eLearning environment?	EL	LT
Not much	7	
A bit	10	
Quite a lot	57	
Very much	26	

Table 91: Feedback

Comments on feedback exist only for Greece.

4.3 Learners in Higher and Adult Education

In the research totally 399 learners in Higher and Adult education from Germany, Austria, Lithuania and Greece have taken part.

Age	EL	LT	DE	AT
Under 25	1	86	57	18
25-29	8	4	26	24
30-39	47	5	17	33
40-49	34	1	0	21
50-59	9	3	0	3
60+	1	1	0	0

Table 92: Age of participants from Higher and Adult Education

These numbers indicate that those who attend ODL programs are usually in their most productive age and usually attend a relevant program to their occupation –more determined in their decision to study and more committed to learning, although the X^2 test of significance didn't show any kind of relation between age and the type of education where they study.

Gender	EL	LT	DE	AT
Male	37	9	26	39
Female	63	91	74	61

Table 93: Gender of participants from Higher and Adult Education

The vast majority of participants from Higher and Adult Learning in the survey are women.

Socioeconomic Status	EL	LT	DE	AT
High	3	7	9	24
Middle	71	71	74	76
Low	26	21	17	0
Are you currently working?	**EL**	**LT**	**DE**	**AT**
Yes	77	52	61	100
No	23	48	39	0
Type of work	**EL**	**LT**	**DE**	**AT**
Part-time	9	75	36	39
Occasional/seasonal	9		43	3
Full-time	83	25	21	58

Table 94: Socioeconomic and working status

Naturally, there are large differences on the characteristics (age, working status and type of work) of the samples that reflect the different cultures of the countries that participate in this research.

comfortable with computer based assignments	EL	LT	DE	AT
Yes	94	91		
No	6	9		
access to tools	EL	LT	DE	AT
Yes	24	22		
No	76	78		
Concentration to	EL	LT	DE	AT
pass the exam	16		74	
understand the topic	84		26	

Table 95: Comfortable with computer based assignments

Almost all learners are comfortable with computer based assignments but, at least in Greece and Lithuania, only one learner to four has access to tools that enable the user to make judgments about your own learning or performance level.

Interesting is the fact that Greek learners concentrate in order to understand the topic but Germans in order to pass the exam. Maybe this is another difference between the cultures of these countries.

Assessment format	Application			
	EL	LT	DE	AT
Multiple choice question (MCQ)	65	42	1	36
Short answer question type	23	27	14	21
Sentence builders	6	6	9	7

Tables and charts exercises	2	11	6	6
Sliders	2	8	3	-
Drag and drop	1	0	13	10
Animated quizzes	1	2	5	9
Word match	0	4	6	4
Voice responses	0	0	8	3
Games	0	0	5	3

Table 96: Predominant Assessment format

Assessment format	Preference			
	EL	LT	DE	AT
Multiple choice question (MCQ)	52	31	30	46
Short answer question type	22	30	11	23
Sentence builders	4	4	4	6
Tables and charts exercises	6	11	7	6
Sliders	2	1	2	0
Drag and drop	3	0	11	10
Animated quizzes	2	11	11	8
Word match	4	1	7	0
Voice responses	2	4	4	0
Games	2	7	13	0

Table 97: Preferable Assessment format

In all countries, learners recognize as the predominant assessment type in eLearning environment MCQ and short answers. It is interesting that according to learners (in Greece), the other types of assessment are practically not used, something that rises question if is combined with the tutors' answers. For instance, 10% of tutors have mentioned that they use games for assessment, while there was a negligible percentage (only 3 out of 813 learners) stated the use of games as any assessment type.

The preference for multiple choice questions was explained with the clarity of response items, no need for further explanations, and time saving by the survey participants. Also multiple choice questions can easily be analysed, graded and evaluated. They are easy to use and seen as reliable methods of assessment (user friendliness). Short answer formats and drag and drop menus are preferred because they are more interactive and participants have the feeling of being more challenged and not just completing an exercise. Some participants like the combination of pre-formulated answers and free answers. For them this guarantees for competence. Also teachers

know with short answer formats that students know the topic and are able to express it by themselves, which is not the case in multiple choice questions. One participant prefers answers where he/she can choose own words and one participant stated that more interactive formats were more fun.

E-portfolio use	EL	LT	DE	AT
Yes	8	19	17	12
No	92	81	83	88
E-portfolio usefulness if in use	EL	LT	DE	AT
Not much	41		25	20
A bit	14		0	40
Quite a lot	38	100	0	20
Very much	6		75	20
Concentrate on:	EL	LT	DE	AT
Understanding the topic	16		26	55
Finishing the exercise	84		74	45

Table 98: E-portfolio use and usefulness

E-portfolio is not in common use, although many participants recognise its usefulness.

Peer assessment frequency	EL	LT	DE	AT
Never	67	69	44	27
Rarely	26		39	48
Usually	7		13	18
Always	0		4	0
Peer assessment usefulness	EL	LT	DE	AT
Not much	48		6	3
A bit	21		18	42
Quite a lot	26	47	35	27
Very much	5		41	0

Table 99: Peer-assessment

Greece and Lithuania do not use as frequently peer assessment as the other countries (German and Austria) and do not assess much its usefulness.

Attention to feedback	EL	LT	DE	AT
Very much	20		**4**	18
Quite a lot	61		31	33
A bit	16		48	39
Not much	3		**17**	9
You read feedback more carefully in the case of:	EL	LT	DE	AT
A good mark	4		4	6
A bad mark	7		**48**	24
Both cases	89	64	48	70
In what extent does feedback help you understand and learn in e-learning environment?	EL	LT	DE	AT
Not much	2		**24**	3
A bit	17		33	42
Quite a lot	59	85	38	30
Very much	21		5	24
Feedback leads to discussion with teacher	EL	LT	DE	AT
Never	9		**50**	12
Rarely	48		46	55
Usually	39		4	33
Always	5		0	0

Table 100: Feedback

In Germany, learners give less attention to feedback, read it more carefully in case of a bad mark, in comparison with learners from other countries, and they think it does not help them understand and learn in e-learning environment and, half the times, it never leads to discussion with their teacher.

4.4 Learners in VET

Totally 270 learners in VET participated in this survey.

Age of the VET learners in the survey	EL	LT	DE
Under 25 years		96	0
25-29 years	14		6
30-39 years	59	4	13
40-49 years	28	0	19
50-59 years			25
60 years or older			6

Table 101: Age of VET learners in the survey

In Lithuania, the majority of learners in Vocational Education and Training are under 25 years old, while in Germany, learners in VET are, on average, older.

GENDER	EL	LT	DE
Woman	62	37	88
Man	38	63	13

Table 102: Gender of VET learners in the survey

Women are the majority of learners in Greece and Germany but not in Lithuania, perhaps this reflects the difference in culture and opportunities for different genders across Europe.

EDUCATIONAL LEVEL	EL	LT	DE
No formal education		4	(MISSING)
Some elementary education	3	4	
Some secondary education		58	
Secondary school completed		30	
Other than university degree		4	
University degree	97		

Table 103: Educational level of VET learners in the survey

One significant difference across Greece and Lithuania is the educational level of learners in VET, since the vast majority of them in Greece have already a University degree. This fact probably reflects the different goals Vocational Training has in these countries.

SOCIOECONOMIC STATUS	EL	LT	DE
High	7	19	13
Middle	83	59	80
Low	10	22	7
EMPLOYMENT	EL	LT	DE
Yes	97	39	93
No	3	61	7
TYPE OF WORK	EL	LT	DE
Part-time work	7		43
Occasional/seasonal work	14		7
Full-time work	79		50

Table 104: Socioeconomic and working status

In Lithuania, we find the larger proportion of low socioeconomic status and the smaller proportion of employed learners in VET (almost half the proportion of other countries). Moreover, 8 to 10 learners in Greece, whereas in Germany are only 5 to 10, are full time employed.

This fact probably reflects the different goals Vocational Training has in these countries.

Are you comfortable with computer based assignments?	EL	LT	DE
Yes	100	87	
No		13	

Table 105: Comfortable with computer based assignments

One to 10 learners in Lithuania is not comfortable with computer based assignments.

e-portfolio use	EL	LT	DE
Yes	15	30	10
No	85	70	90
e-portfolio usefulness	EL	LT	DE
Not much	33	25	50
A bit	33	50	0
Quite a lot	17	17	0
Very much	17	8	50

Table 106: E-portfolio use and usefulness

It is impressive that learners in Lithuania use e-portfolio twice as much they use it in Greece and three times they use it in Germany. Moreover German learners are splitting in half according

their opinion about the usefulness of e-portfolio, while learners from Greece and Lithuania are somewhere in the middle.

Peer assessment frequency	EL	LT	DE
Never	33	52	10
Rarely	33	43	70
Usually	29	5	10
Always	4	0	10
Peer-assessment usefulness	EL	LT	DE
Not much	30	52	30
A bit	25	24	60
Quite a lot	40	24	10
Very much	5	0	0

Table 107: Peer-assessment

Almost all learners from Lithuania rarely or never use peer assessment while a 10% of German learners always use it. Naturally, 3 out of 10 learners in Greece and Germany believe that peer assessment is of no usefulness whereas in Lithuania the corresponding proportion is 5 to 10.

Access to tools that enable them to make judgments about their own learning or performance level	EL	LT	DE
Yes	63	50	
No	38	50	
During assignments on computer:	EL	LT	DE
You concentrate on passing the exam	22	50	44
You concentrate on understanding the subject	78	50	56

Table 108: Access to tools and computer assignments

There are large parts of the population that have not access to tools that enable judgments about personal learning and performance level, at least in Greece and Lithuania.

Lithuania and Germany learners are split in half concerning their concentration during assignments on computer whereas, in Greece, 8 to 10 learners concentrate on understanding the subject rather than passing the exam.

How carefully do you read feedback in eLearning environment?	EL	LT	DE
A bit	14	11	10
Quite a lot	45	32	80
Very much	41	57	10
You read feedback more carefully in the case of:	**EL**	**LT**	**DE**
A good mark	-	36	-
A bad mark	14	23	30
Both cases	86	38	70
In what extent feedback helps you to understand and learn in eLearning environment?	**EL**	**LT**	**DE**
A bit	5	15	20
Quite a lot	50	35	70
Very much	45	50	10
How frequently feedback prompts discussion with your tutor in eLearning environment?	**EL**	**LT**	**DE**
Never	-	-	10
Rarely	50	90	50
Usually	50	10	40
Always	-	-	0

Table 109: Feedback

It appears that most learners in Europe read carefully feedback in eLearning environment in the case of either a good or a bad mark (in Lithuania a considerable part of learners read feedback only in case of a good mark) and believe that feedback helps them to understand and learn considerably. However feedback does not prompt discussion with the tutor most of the times, and that is a point that could be improved.

ASSESSMENT FORMAT	EL		LT		DE	
	Predom	Prefer	Predom	Prefer	Predom	Prefer
Multiple choice question (MCQ)	80	50	30	14	20	25
Short answer question type	8	18	14	21	20	17
Drag and drop	8	5	4	11	12	4
Tables and charts exercises	4	7	22	6	10	4
Games	-	9	14	9	5	13
Word match	-	7	4	8	7	13
Sentence builders	-	2	4	5	10	17
Sliders	-	2	4	9	2	-
Voice responses	-	-	-	9	12	2
Hotspot	-	-	-	-	2	8
Animated quizzes	-	-	4	8	-	-

Table 110: Predominant and Preferable Assessment format

Multiple Choice Questions are both the predominant and the preferred assessment format followed by Short Answer question type and tables and charts exercises.

5. Final Conclusions

This survey carried out from 20/05/2013 until 15/09/2013. In this period of time almost 1254 questionnaires have been collected in order to study the different methods used in e-learning environments around Europe. In this chapter we will try to sum up the main conclusion of the survey, about the specific needs of the partners regarding assessment.

The first and main research question of this study was to ***define and interpret the most widely used educational assessment methods in Europe***. Table 111 shows the predominant and preferable assessment format for tutors, learners in higher & adult education, VET, primary and secondary education.

There are many similarities among the answers of tutors, learners in higher & adult education and in VET. Students in primary and secondary education recognize as the predominant assessment type in eLearning environment MCQ, short answers, games and in lower percentage the rest of the assessment question types. In general, the format that students in primary and secondary education prefer to use comes in agreement with the predominant type of assessment, although students emphasize more on the use of games as an assessment tool.

But still, the most preferable assessment format is MCQ, only in a more innovative way. This result agrees with the previous literature. Innovations in the multiple-choice category for online settings can include new response actions not common in paper-and-pencil settings, such as clicking on an area of a graphical image, and can also include new media, such as distractors that are sound clips.

The results also gave answer to the research question about ***the particular features of assessment methods used in eLearning environments, and about those assessment methods in eLearning environments, which have added value.***

Different types of assessment have been commented by tutors and learners as follows:

- **MCQ** is very effective assessment technique and suits well for both exact sciences and humanities and suits better for some learners (for example, working men). It often require less time to administer for a given amount of material than would tests requiring written responses. MCQs do not require a teacher to interpret answers and can be more focused and objective in an eLearning environment, and they are familiar to adult

learners. Majority of tutors consider MCQ to be one of the strongest predictors of overall student performance compared with other forms of evaluation and they promote active participation in education and provide better material comprehension. The most serious disadvantage of MCQ according to the respondents is the limitedness in types of knowledge that can be assessed by using it and a probability of guessing the right answer.

- **Short answer question type** is considered good to assess the basic knowledge and understanding of a topic before more in-depth assessment and also develop critical thought, demand clarity in the answer, test the learner's expression ability and assists him in developing a personal writing style. It is a type which prevents cheating and guessing and relatively easy to set in comparison to many assessment methods.

- **Games** are more attractive, more interactive and more flexible way of assessment, while experience and practice incorporation are achieved effectively in a way which activate multiple skills. Game-based assessment can help teachers to personalize learning, to better motivate students, and to instill conceptual understanding and knowledge transfer.

- **Tables and charts exercises** help for better data visualization. However, learners need to know how to interpret the data and the way it is presented.

Finally, a lot of tutors select to use many different formats of assessment, because they consider that –by this manner- final results are more safe, objective and reliable, while assessment can be more interested if it uses games.

The majority of tutors measure contribution of the learners to discussion groups.

On the other hand, all learners explain that they have chosen the assessment format in eLearning environment by using criteria which had to do with the qualities of the assessment, like:

- ❐   easiness,
- ❐   comfort,
- ❐   response time of feedback,
- ❐   objectivity.

Additionally, learners in VET explain that they have chosen the assessment format in eLearning environment by using the further criteria of:

- ❐   graded difficulty,
- ❐   clarity,

☐   interactivity.

Such criteria provide critical thought, are based on knowledge and not on memorization, so they are the best learning way and in addition, they grasp the attention with their variety, while on the same time can cover a huge volume of educational material.

On the other hand, results from learners in higher and adult education shows that the fluency in computer assignments, the assistance that the learner gets from e-portfolio and the attention that he pays in feedback and its use, is related with their socioeconomic status. These data reflect the fact that those being in high socioeconomic status are more computer literate (for example, those who are not fluent in pc assignments are of middle and low socioeconomic status).

Another critical research question of this survey refers to the ***distinction of assessment formats between those which just focus on testing the acquisition of declarative knowledge and those which provide much deeper insights*** and ***the way that feedback influence student achievement in eLearning***.

Results are more divided for the use of e-portfolio as evidence of work undertaken, since no more than half the tutors use it, while its use is divided between formal assessment and other formative and supplementary purposes.

The respondents rarely use peer assessment and do not measure high importance to it. However, the students do pay more attention to feedback by the tutor. This suggests that students rather expect helpful and correct advice from the tutors than from other students. This could correspond to the trend of 'bulimic education' where the students only learn to pass as test.

Peer assessment is seen as quite useful by most learners in the study population but the majority of them never or rarely use it. This needs more elaboration in adult education.

E-Portfolios are not used frequently and if it is used the usefulness is unclear and assessed differently. More focus should be put into information about usefulness of e-portfolios in adult education and higher education.

Feedback in blended learning, which is becoming the dominant way of e-learning, should lead to conversations with the teacher or tutor but it rarely does so e-learning and face-to-face teaching still seem to be disconnected.

Finally, based to the data, our recommendations according to the on-line exams are summarize below:

✓ Easiness and accessibility, mostly for those who stay far away from the exam centers and have an occupation.

✓ There should be no specific time of the on-line exam

✓ In case of a wrong answer the feedback should be based on a specific topic from their educational material

✓ Assurance of credibility, because there is always a matter of cheating and identifying the examinee.

✓ Frequent contact with the tutor.

Recommendations for upgrading the assessment formats are the following:

✓ The creation of a topic bank [of different assessments' formats] , as a product of a team work

✓ The decrease of the size with simultaneous increase of the number of assignments

✓ The use of assessment formats through intelligent interactive applications for ipad, iphone.

✓ The combination of various assessment formats gives rise to more effective and objective assessment, with higher learner's participation.

As an overall conclusion we should clearly say that there is a positive attitude towards assessment in eLearning environment and this is going to be more popular in the future provided that there will be the necessary infrastructure.

Appendix A1

STUDENT QUESTIONNAIRE

Dear student,
Please tell us about computer based assessment. Your feedback plays an important role in developing the quality of the assessment methods used in your e-learning environment. In this questionnaire, the term "e-learning" refers to the use of electronic media and information and communication technologies (ICT) in education.
Please read the questions carefully and then select the option you feel best matches or comes closest to your experience. Remember, there are no right or wrong answers.

How old are you?

Under 12 ④

3 -15   ④

16 -18   ④

What gender are you?

Female ④

Male   ④

Your parents level of education:

	FATHER		MOTHER
No studies	④	No studies	④
Primary education	④	Primary education	④
Secondary education	④	Secondary education	④
High school studies	④	High school studies	④
Undergraduate studies	④	Undergraduate studies	④
Graduate studies	④	Graduate studies	④
Doctoral degree	④	Doctoral degree	④

Are you comfortable with computer based assignments? Yes ④   No ④

What is the <u>predominant</u> assessment question type in your e-learning environment?

Multiple choice question (MCQ) ④	Drap and drop	④
Short answer question type	④	Sentence builders	④
Tables and charts exercises	④	Hotspot	④
Voice responses	④	Sliders	④
Animated quizzes	④	Word match	④
Games	④	Other: _____

Which e-assessment format do you <u>prefer to use</u>?

Multiple choice question (MCQ) ④	Drap and drop	④
Short answer question type	④	Sentence builders	④
Tables and charts exercises	④	Hotspot	④

Voice responses	④	Sliders	④
Animated quizzes	④	Word match	④
Games	④	Other: _____	

Please explain <u>why</u>:

_____
____
_____
____
_____
____
_____
____

Do you use e-portfolio (*an electronic means of recording personal learning and achievement supported by reflective activities***)?**   Yes ④   No ④

If Yes, how much does e-portfolio help you learn?
Very much   Quite a lot   A bit   Not much
   ④   ④   ④   ④

How often do you assess the learning of your peer (*peer-assessment***) in elearning environment?**
   Never   Rarely   Usually   Always
   ④   ④   ④   ④

How much does *peer-assessment* help you learn?
Very much   Quite a lot   A bit   Not much
   ④   ④   ④   ④

Do you have access to tools that enable you to make judgements about your own learning or performance level?   Yes ④   No ④

During assignments on computer:
You concetrate on passing the exam   ④
You concetrate on understanding the subject   ④

How carefully do you read feedback in elearning environment?
Very much   Quite a lot   A bit   Not much
   ④   ④   ④   ④

You read feedback more carefully in the case of:
A good mark ④
A bad mark   ④
Both cases   ④

In what extent feedback helps you to unterstand and learn in elearning environment?
Very much   Quite a lot   A bit   Not much
   ④   ④   ④   ④

How frequently feedback prompts discussion with your tutor in elearning environment?

Never   Rarely   Usually Always

④   ④   ④   ④

Assessment on a computer is better than writing because...

_____
_____
_____
_____
_____
_____
_____
_____

Write briefly your opinion about on-line emaminations

<p align="center">THANKS FOR YOUR HELP!</p>

Appendix A2

HIGHER AND ADULT EDUCATION QUESTIONNAIRE

Dear learner,

CRITON is a european survey about the timely assessment of the achievement of learning outcomes. In this questionnaire, you will find questions about computer based assessment.
Your feedback plays an important role in developing the quality of the assessment methods used in e-learning environment. In this questionnaire, the term "e-learning" refers to the use of electronic media and information and communication technologies (ICT) in education.
Please read the questions carefully and then select the option you feel best matches or comes closest to your experience. Remember, there are no right or wrong answers.

How old are you?

Under 25	25-29	30-39	40-49	50-59	60+
④	④	④	④	④	④

What gender are you?

Female ④

Male ④

What is your socioeconomic status?

High ④
Middle ④
Low ④

Are you currently working?

Yes ④   No ④

If so, what type of work do you do?

Part-time work	Occasional/seasonal work	Full-time work
④	④	④

For how many hours are you normally employed each week?

None	1-10hrs	11-15hrs	16+hrs
④	④	④	④

Are you comfortable with computer based assignments? Yes ④   No ④

What is the <u>predominant</u> assessment question type in your e-learning environment?

Multiple choice question (MCQ)	④	Drap and drop	④
Short answer question type	④	Sentence builders	④
Tables and charts exercises	④	Hotspot	④
Voice responses	④	Sliders	④
Animated quizzes	④	Word match	④

Games ④   Other: _____

Which e-assessment format do you <u>prefer to use</u>?

Multiple choice question (MCQ)	④	Drap and drop	④
Short answer question type	④	Sentence builders	④
Tables and charts exercises	④	Hotspot	④
Voice responses	④	Sliders	④
Animated quizzes	④	Word match	④
Games	④	Other: _____	

Please explain <u>why</u>:

_____
_____
_____
_____
_____
_____
_____
_____

Do you use e-portfolio (*an electronic means of recording personal learning and achievement supported by reflective activities***)?**   Yes ④   No ④

If Yes, how much does e-portfolio help you learn?
Very much   Quite a lot   A bit   Not much
   ④   ④   ④   ④

How often do you assess the learning of your peer (*peer-assessment***) in elearning environment?**
   Never   Rarely   Usually   Always
    ④   ④   ④   ④

How much does *peer-assessment* help you learn?
Very much   Quite a lot   A bit   Not much
   ④   ④   ④   ④

Do you have access to tools that enable you to make judgements about your own learning or performance level?   Yes ④   No ④

During assignments on computer:
You concetrate on passing the exam   ④
You concetrate on understanding the subject   ④

How carefully do you read feedback in elearning environment?
Very much   Quite a lot   A bit   Not much
   ④   ④   ④   ④

You read feedback more carefully in the case of:
A good mark ④

A bad mark   ④
Both cases   ④

In what extent feedback helps you to unterstand and learn in elearning environment?
Very much   Quite a lot   A bit   Not much
   ④   ④   ④   ④
How frequently feedback prompts discussion with your tutor in elearning environment?
   Never   Rarely   Usually   Always
   ④   ④   ④   ④

Write briefly your opinion about on-line assignments:

_____
_____
_____
_____
_____
_____
_____
_____

THANK YOU VERY MUCH FOR YOUR COOPERATION!

Appendix A3

Dear learner,

CRITON is a european survey about the timely assessment of the achievement of learning outcomes. In this questionnaire, you will find questions about computer based assessment.
Your feedback plays an important role in developing the quality of the assessment methods used in e-learning environment. In this questionnaire, the term "e-learning" refers to the use of electronic media and information and communication technologies (ICT) in education.
Please read the questions carefully and then select the option you feel best matches or comes closest to your experience. Remember, there are no right or wrong answers.

How old are you?

Under 25	25-29	30-39	40-49	50-59	60+
④	④	④	④	④	④

What gender are you?

Female ④

Male ④

What is the highest level of education that you have completed?

No formal education ④
Some elementary education ④
Elementary education completed ④
Some secondary education ④
Secondary school completed ④
Some post secondary education ④
Post secondary certificate/diploma

other than university ④
University degree ④

What is your socioeconomic status?

High ④
Middle ④
Low ④

Are you currently working?
Yes ④   No ④
If so, what type of work do you do?

Part-time work	Occasional/seasonal work	Full-time work
④	④	④

For how many hours do you normally employ each week?

None   1-10hrs   11-15hrs   16+hrs

④   ④   ④   ④

Are you comfortable with computer based assignments? Yes ④   No ④

What is the <u>predominant</u> assessment question type in your e-learning environment?

Multiple choice question (MCQ)	④	Drap and drop	④
Short answer question type	④	Sentence builders	④
Tables and charts exercises	④	Hotspot	④
Voice responses	④	Sliders	④
Animated quizzes	④	Word match	④
Games	④	Other: _____	

Which e-assessment format do you <u>prefer to use</u>?

Multiple choice question (MCQ)	④	Drap and drop	④
Short answer question type	④	Sentence builders	④
Tables and charts exercises	④	Hotspot	④
Voice responses	④	Sliders	④
Animated quizzes	④	Word match	④
Games	④	Other: _____	

Please explain <u>why</u>:

_____
_____
_____
_____
_____
_____
_____
_____

Do you use e-portfolio (*an electronic means of recording personal learning and achievement supported by reflective activities***)?**   Yes ④   No ④

If Yes, how much does e-portfolio help you learn?

Very much   Quite a lot   A bit   Not much
④   ④   ④   ④

How often do you assess the learning of your peer (*peer-assessment***) in elearning environment?**

Never   Rarely   Usually   Always
④   ④   ④   ④

How much does *peer-assessment* help you learn?

Very much   Quite a lot   A bit   Not much
④   ④   ④   ④

Do you have access to tools that enable you to make judgements about your own learning or performance level? Yes ④ No ④

During assignments on computer:
You concetrate on passing the exam ④
You concetrate on understanding the subject ④

How carefully do you read feedback in elearning environment?
Very much Quite a lot A bit Not much
④ ④ ④ ④

You read feedback more carefully in the case of:
A good mark ④
A bad mark ④
Both cases ④

In what extent feedback helps you to unterstand and learn in elearning environment?
Very much Quite a lot A bit Not much
④ ④ ④ ④

How frequently feedback prompts discussion with your tutor in elearning environment?
Never Rarely Usually Always
④ ④ ④ ④

Write briefly your opinion about on-line assignments:

_____
_____
_____
_____
_____
_____
_____
_____

THANK YOU VERY MUCH FOR YOUR COOPERATION!

Appendix B

TEACHER/TUTOR QUESTIONNAIRE

Dear teacher/tutor,

CRITON is a european survey about the timely assessment of the achievement of learning outcomes. In this questionnaire, you will find questions about e-assessment methods and formats.
Please read the questions carefully and then select the response option you feel best describes or comes closest to your particular situation. Remember, there are no right or wrong answers.

1. E-assessment method should encourage:

	Disagree strongly	Disagree	Agree	Agree strongly
The rethinking of curriculum	④	④	④	④
E-Learning	④	④	④	④
Technology	④	④	④	④

2. E-assessment method supports:

	Disagree strongly	Disagree	Agree	Agree strongly
Higher order thinking	④	④	④	④
Social skills	④	④	④	④
Group work	④	④	④	④

3. In order e-assessment method to add to the learning experience for students, what will you take into account?

	Disagree strongly	Disagree	Agree	Agree strongly
The subject objectives	④	④	④	④
The needs, characteristics and situation of the learners	④	④	④	④
Your time and effort to design tasks	④	④	④	④

Other: _____

4. The type of e-assessment format depends on:

	Disagree strongly	Disagree	Agree	Agree strongly
Learning objectives	④	④	④	④
Size of the class	④	④	④	④
Prevention of cheating student	④	④	④	④
Grating time	④	④	④	④

Other critiria: _____

5. What is the <u>predominant</u> e-assessment format in your e-learning environment?

Multiple choice question (MCQ) ④	Drap and drop	④
Short answer question type ④	Sentence builders	④
Tables and charts exercises ④	Hotspot	④
Voice responses ④	Sliders	④
Animated quizzes ④	Word match	④
Games ④	Other: _____	

6. Which e-assessment format do you prefer to <u>construct</u>?

Multiple choice question (MCQ) ④   Drap and drop   ④

Short answer question type	④	Sentence builders	④
Tables and charts exercises	④	Hotspot	④
Voice responses	④	Sliders	④
Animated quizzes	④	Word match	④
Games	④	Other: _____	

7. Please specify why:

8. List 4 assessment formats from any of the table above you like to <u>use</u> most:

1._____   2._____

3._____   4._____

9. Please explain <u>why</u> you use them and how you think they could be used more <u>effectively</u>

10. Do you measure contribution to an online discussion group? Yes ④   No ④

11. If Yes, you use it for:
Formative and supplementary purposes ④
Formal assessment   ④

12. Do you use e-portfolios, as evidence of work undertaken?   Yes ④   No ④

13. If Yes, you use it for:
Formative and supplementary purposes ④
Formal assessment   ④

14. You use diagnostic assessment (*assessment of a learner's knowledge and skills at the outset of a course*) **in your eLearning environment:**

Never	Rarely	Usually	Always
④	④	④	④

15. You use formative assessment (*assessment that provides developmental feedback to a learner on his or her current understanding and skills*) **in your eLearning environment:**

Never	Rarely		Usually	Always
④	④	④	④	

16. You use summative assessment (*the final assessment of a learner's achievement*) **in your eLearning environment:**

Never	Rarely	Usually	Always
④	④	④	④

17. You use peer-assessment in your eLearning environment:

Never	Rarely	Usually	Always
④	④	④	④

18. What else do you think we should know about e-assessment methods in your e-learning environment?

Thank you very much for your cooperation!

Appendix C

OWNERS/POLICY MAKERS INTERVIEW

1. How do you promote the integration of instruction and assessment?

2. How do you ensure that assessment methods and results accurately reflect each student's actual knowledge, understanding and achievement?

3. What assessment methods and modes do you include in order to allow all students culturally, socioeconomically diverse students to demonstrate what they know and can do?

4. What procedures do you include for determining the appropriateness of assessments for culturally, socio-economically diverse students?

5. How do you ensure that assessments methods and modes are used for the primary purpose of improving student learning?

6. Which are the best assessment practices in your elearning environment based on your experience?