



## **WP2**

### **NATIONAL REPORT:**

**FIELD RESEARCH ABOUT SPECIFIC NEED OF THE PARTNERS**

**REGARDING ASSESSMENT.**

**THE CASE OF GREECE**

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**2013**

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

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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](http://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, Germany).

This National Report 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 Greece, 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 Greece and why?
- What are the particular features of assessment methods used in eLearning environments in 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 REVIEW OF THE LITERATURE

In Greek literature, there is a variety of resources about e-assessment and evaluation in distance learning, mainly from Conference Proceedings in Open and Distance Learning. The following Table 2 shows the most relevant papers.

No.	Author(s)	Title	Place	Publisher	Year	Form
1	Antonis Lionarakis & Adamantia Spanaka	Formative evaluation in distance learning	Athens	Open Education - The Journal for Open and Distance Education and Educational Technology	2010	Article
2	Evagelia Gouli, Agoritsa Gogoulou & Maria Grigoriadou	Supporting assessment through environment	Syros	5 <sup>th</sup> Conference of ICT in education	2009	Conference Proceedings
3	Christos E. Alexakos, Konstantinos C. Giotopoulos, Eleni J. Thermogianni, Grigorios N. Beligiannis and Spiridon D. Likothanassis	Integrating Environments Computational Intelligence Assessment Agents	USA	World Academy of Science, Engineering and Technology	2006	Article
4	A. Giannakulopulos & M. Meimaris	Evaluation of courses via the web and proposals for applications	Athens	4 <sup>th</sup> International Conference in Open and Distance Learning (ICODL)	2007	Conference Proceeding
5	Sylvie Ioakimidou, Antonis Lionarakis	The quality assurance in teaching and learning processes in distance education: a review	Loutraki	6 <sup>th</sup> ICODL	2011	Conference Proceeding

No.	Author(s)	Title	Place	Publisher	Year	Form
6	Sofia Papadimitriou, Spyros Papadakis, Antonis Lionarakis, Achilleas Kameas	A proposal for the use of Learning Activity Management System (LAMS) to support the work of Tutors in HOU	Loutraki	6 <sup>th</sup> ICODL	2011	Conference Proceeding
7	Georgios-Aristeides Papathanasiou, Evangelia Manousou	E-portfolio as implementation supplementary school distance learning	6 <sup>th</sup> ICODL	2011	Conference Proceeding	6 <sup>th</sup> ICODL

**Table 2: Alternative assessment methods, evaluation and quality assurance in Greece – Literature review**

There are theoretical papers and original research articles. More precisely, the first paper is a theoretical one. Authors Antonis Lionarakis and Adamantia Spanaka (2010) in *“Formative evaluation in distance learning”* aim to select the necessity for formative evaluation in higher education institutions, such as in the Hellenic Open University. They describe the content of quality assurance and evaluation process through the international bibliography, leading to proposals for the evaluation in Hellenic Open University.

Evagelia Gouli, Agoritsa Gogoulou & Maria Grigoriadou (2009) in the paper *“Supporting alternative assessment methods through PECASSE environment”*, they present the basic functions of the e-learning environment PECASSE, which was designed and implemented in order to support alternative assessment methods, such as self-assessment, the peer review and collaborative assessment.

Distinguishing features PECASSE concerning the support of all three methods of evaluation and possible combinations, the possibility of collaboration of students with multiple ways to form groups of authors and / or assessors following alternative strategies and to define the shape evaluation following alternative approaches target the active involvement of students and guide them in the evaluation phase.

Christos E. Alexakos, Konstantinos C. Giotopoulos, Eleni J. Thermogianni, Grigorios N. Beligiannis and Spiridon D. Likothanassis (2006) in their contribution *“Integrating E-learning Environments with Computational Intelligence Assessment Agents”* present an innovative platform that integrates intelligent agents in legacy eLearning environments. This article introduces the design and development of a scalable and interoperable integration platform supporting various assessment agents for eLearning environments. The agents are implemented in order to provide intelligent assessment services to computational intelligent techniques such as Bayesian Networks and Genetic Algorithms. The utilization of new and emerging technologies like web services allows integrating the provided services to any web based legacy eLearning environment.

A. Giannakulopulos & M. Meimaris (2007) examine *“Evaluation of courses via the web and proposals for applications”*. The paper examines the anticipated differences within the evaluation procedure of courses and tutors as a result of the use of ICT and proposes specific examples of applications, in which the evaluation is substantiated via the web thus achieving the desired ease of use and quickness. Apart from the technical matters, the discussion focuses on the anonymity of the evaluators and the temporal parameter. Though the technical restrictions are not overlooked within the conclusions, the proposed modifications clearly support the enrichment of the platforms with modules for the evaluation of courses and tutors in order to result in a more effective process.

Another theoretical paper comes from Sylvie Ioakimidou and Antonis Lionarakis (2011) by the title *“The quality assurance in teaching and learning processes in distance education: a review”*. This paper attempts a review of the literature on quality assurance in open distance teaching and learning processes

mainly in universities during the last two decades. There is an effort to bring forth some elements about the aims; the kind of research and the methodology used; some matters or problems faced so far; some tendencies and orientations to future research. Influenced by the management field the quality assurance in education has gradually become an issue of great importance and interest. Teaching and learning in the core of the educational process cannot but be affected. This research review could be taken under consideration so far or it could work as a kind of motivation for future research on this field focusing on issues like a wide agreement on objective and reliable measurement of quality in teaching and learning processes in an open distance learning environment.

Sofia Papadimitriou, Spyros Papadakis, Antonis Lionarakis, Achilleas Kameas (2011) make *“A proposal for the use of Learning Activity Management System (LAMS) to support the work of Tutors in HOU”*. Based to that paper, the integration of the Information and Communication Technologies (ICT) has changed significantly the field of education. Due to the adoption of new technologies, eLearning has been emerged and developed. As a result, distance learning has transformed and new possibilities have appeared. It is remarkable that distance learning became and considered as a scout of the new era in education and contributed to the quality of education. Supporting tutors by means of advanced learning technologies in distance education is a significant contribution for their effective role in organizational, social and educational context.

The Learning Activity Management System (LAMS) is a new proposal to the learning design standard. In this paper, we propose the LAMS exploitation at the Hellenic Open University (HOU) and illustrate a guide to design and develop a sequence of learning activities on *“Preparing and producing assignment”*. The preparation of the assignments by students is the primary mode of the comprehension of educational materials and an important dimension of teaching students in distance education context, where they are the main responsible for their learning. This proposal highlights the advantages, requirements and constraints concerning the development of learning sequences specifically designed by tutors themselves. They follow the principles of adult learning and development of distance



education material, oriented to different educational goals and individual needs of their learners.

Finally, the paper "*E-portfolio as tool implementation supplementary school distance learning*" by Georgios-Aristeides Papathanasiou, Evangelia Manousou (2011) argue that the increasing need of an improved education and the upliftment of standards in learning, is leading to a development and use of digital technology which enables the creation and the implementation of tools supporting and strengthening the learning process in school distance education. They present the digital student file (P.S.F.M.), as an innovative tool applied to the secondary education in Greece in the process of implementation of the institution's School Career Guidance (SEP). This study aims at investigating the creation method of a digital student file, and its development within the framework of school additional distance education in the discipline of School Career Guidance in Secondary Schools. This investigation was carried out through an extensive literature review on Greek and foreign literature within the theoretical framework and its applications, the student work folder, the digital student file, the development of an application methodology, and the methodology of educational research.

### 3 METHODOLOGICAL APPROACH

Questionnaires for all levels of education (primary and secondary education, higher and adult education, VET) for students and tutors are collected through the website *SurveyMonkey* [<https://www.surveymonkey.com/>] and data are 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. Finally, the results from the different levels of education are combined in the final conclusion of Criton research.

Notes:

- 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.

## 4 RESEARCH RESULTS

In this chapter presents the results of the survey. The first section presents the opinions of tutors, the second section presents the opinions of learners in Higher and Adult education, the third section the opinions of learners in primary and secondary education. The final fourth section present the findings from learners in Vocational Education and Training (VET).

### 4.1 OPINIONS OF 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 1 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

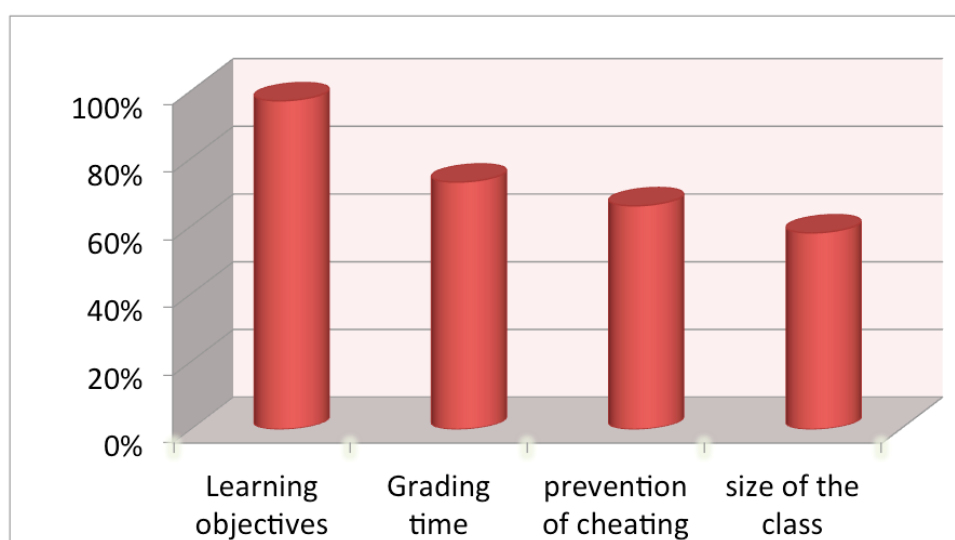
**Table 1. Number of Tutor Participants**

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 1.



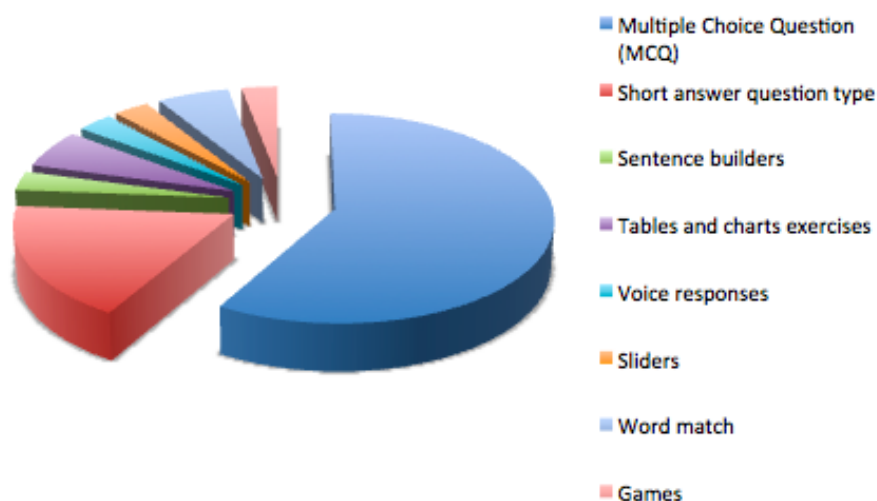
**Graph 1: Factors in Selection of Assessment Format**

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 2: The predominant assessment format in eLearning environment**



**Graph 2: The predominant assessment format in eLearning environment**

Other predominant e-assessment format that some tutors use are 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 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 a more functional format of assessment and suits better for some learners (for example, working men). Additionally, 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 develop critical thought, demand clarity in the answer and test the learner's expression ability and assists 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 4, 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 4 : 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 contacts 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.



## 4.2 OPINIONS OF LEARNERS FROM 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 5: 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. 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 6: 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

painment. Another reason could be that they didn't have a chance of studying earlier due to social, economical or other reasons.

In fact, the  $\chi^2$  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 ( $\chi^2$  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 7: 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 8.

Are you curently working?	Percentage (%)
Yes	77
No	23
Type of work	Percentage (%)
Part-time	9
Occasional/seasonal	9
Full-time	83

**Table 8: 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 has 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 are communication, library facilities and fora.

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 9: 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.

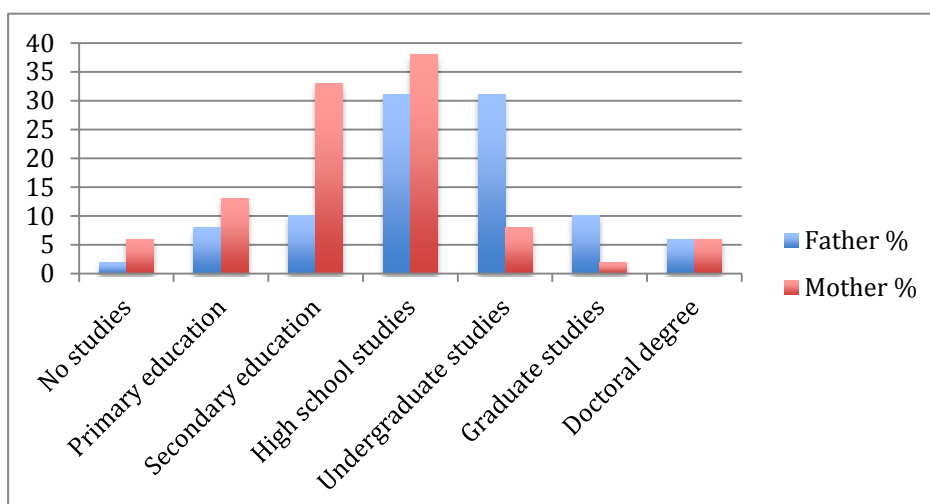
### 4.3 OPINIONS OF STUDENTS IN PRIMARY AND SECONDARY EDUCATION

In the research have taken part 47 students, 25 boys και 22 girls. 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 10: 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 .



**Graph 3: 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 11: Predominant Assessment format**

As we can see in Table 12 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.

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

**Table 12: 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.

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

**Table 13: 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 14.

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 14: 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?		TOTAL %
		YES %	NO %	
AGE	Under 12	30	25	29
	13 -15	52	-	48
	16 -18	18	75	23
TOTAL		100	100	100

**Table 15: Age and Computer based assignments Crosstabulation**



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

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

**Table 16: Age and the use of e-portfolios Crosstabulation**

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 17: Age and the help from e-portfolios Crosstabulation**

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

		How often do you assess the learning of your peer ( <i>peer-assessment</i> ) in elearning environment?				TOTAL %
		Never	Rarely	Usually	Always	
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 18: 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 19: Age and self-assessment judgement tools**

#### Crosstabulation

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 ,70.

**Table 20: 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	<b>100</b>
Sliders	40	40	20
Drag and drop	33	67	0
Animated quizzes	0	<b>100</b>	0
Word match	0	<b>100</b>	0
Voice responses	0	0	<b>100</b>
Games	42	25	33

**Table 21: 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.

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

**Table 22: Gender and Predominant Assessment Format Crosstabulation**

PREDOMINANT ASSESSMENT FORMAT	GENDER	
	GIRL	BOY
Animated quizzes	0	100
Word match	0	100
Voice responses	<b>67</b>	33
Games	<b>58</b>	42

**Table 22: Gender and Predominant Assessment Format Crosstabulation**

#### 4.4 OPINIONS OF STUDENTS IN VOCATIONAL EDUCATION AND TRAINING

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 23.

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 23: Descriptive Data of Students in VET**

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

**Table 23: 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 doesn't 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.

<b>ASSESSMENT FORMAT</b>	<b>Predominant Assessment format (%)</b>	<b>Preferable assessment format (%)</b>
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 24: Predominant and Preference classification of assessment format in eLearning**

Students responses, as presented on Table 26, 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 26.

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.

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

**Table 25: 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 25: 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 26: Feedback**



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

**Table 26: Feedback**

## 5 FINAL CONCLUSIONS AND RECOMMENDATIONS

The first and main research question of this study was to *define and interpret the most widely used educational assessment methods in Greece*. Table 27 shows the predominant and preferable assessment format for tutors, learners in higher & adult education, VET, primary and secondary education.

Predominant Assessment Format	Tutors	Learners in Higher & Adult Education	VET	Learners in Primary Education
Multiple choice question (MCQ)	59	65	80	43
Short answer question type	18	23	8	22
Sentence builders	3	6	-	1
Tables and charts exercises	6	2	4	6
Sliders	3	2	-	1
Drag and drop	-	1	8	6
Animated quizzes	-	1	-	1
Word match	6	-	-	3
Voice responses	3	-	-	3
Games	3	-	-	14
Preferable Assessment Format	Tutors	Learners in Higher & Adult Education	VET	Learners in Primary Education
Multiple choice question (MCQ)	34	52	50	38
Short answer question type	27	22	18	12
Sentence builders	5	4	2	3
Tables and charts exercises	7	6	7	5
Sliders	5	2	2	1
Drag and drop	5	3	5	9
Animated quizzes	1	2		1
Word match	1	4	7	5
Voice responses	3	2	-	4
Games	10	2	9	21

**Table 27: Predominant and Preferable assessment format**

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 (Parshall, Spray, Kalohn, & Davey, 2002).

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

In the open ended questions of the questionnaires, tutors explain that their selection reflects their theoretical aspects, as well as their experiences in education. So, they explain that they choose the assessment format according the age group of the learners, as well as their potential level in order to better fit them in the eLearning training character. They select an assessment type in order to contribute in the comprehension of the study material, which is rather "dense" and extends on time and place. In that way, learners are assisted in studying, while, on the other hand, tutor can better evaluate their final results.

Tutors believe that the combination of various assessment formats gives rise to more effective and objective assessment, with higher learner's participation. So assessment can be less formulaic and perhaps less stressful. As a bonus they cover all assessment formats, they activate thought and test the total of knowledge.

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:

- easyness,
- 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.

Another interesting result of the survey is that Age consists a significant factor in students answers. There is statistical significance among:

- age and the fluency in computer assignments,
- age and the the use and the help they receive from e-portfolio,
- age and the the oftness that they assess the learning of their peer,
- age and the the access to tools that enable them to make judgements about their own performacne or learning level and
- age and the the time that they read feedback.

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

Additionally, according to data, the older the students the more rarely they use peer-assessment. In general, only tutors and students in primary education use e-porfolio and peer-assessment.

On the other hand, results from learners in higher and adult educationIt 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, in 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 way that feedback influence student achievement in eLearning.***

Based on the data, only two out of ten of learners and students don't read feedback and they are the same who believe that feedback is useless. According to literature, an important function of assessment is providing students with 'continuous feedback', meaning that opportunities for feedback should occur continuously, but not intrusively, as a part of instruction (Williams, 2004; Bransford *et al.*, 2000). Bell and Cowie (2001) concluded that assessment is increasingly being used to refer only to assessment that provides feedback to students (and teachers) about learning occurring during the period of instruction and learning, and not after that.

Finally, our **recommendations according to the on-line exams** are summarized 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, 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.

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