Evaluating a Greek National Action on Students' Training on ICT and Programming Competences

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Abstract. It is well understood that university graduates, regardless of discipline, must have appropriate information and communication technology (ICT) competencies to function and be employable in the modern world. Nevertheless, the results of surveys indicate significant deficiencies in the use of ICT by students of higher education. e-kpaidefteite.gr is an initiative launched by the Greek government that aims to train and certify students of higher education on ICT. This paper presents the results of two separate surveys that took place during the period December 2008 - January 2009. The first survey targeted the students that have completed the programme and the second one the educational providers that participated in the programme and offered the training to the beneficiaries.

Keywords: National action, training, students, ICT.

1 Introduction

According with the Partnership for 21st Century Skills' vision for the 21st Century Student success in the new global digital economy, students should master skills, knowledge and expertise in order to succeed in work and life. Among these skills are Information, Media and Technology Skills [1]. Moreover, it is well understood that university graduates, regardless of discipline, must have appropriate information and communication technology (ICT) competencies to function and be employable in the modern world [2], [3].

Universities nowadays are using more ICT in their teaching and learning environments. According to a survey conducted in university students by University of Rome in the context of "Easy" project the e-learning services utilised the most by students are: course management (timetables, lessons), downloading of tools/slides/papers/articles and communication with teachers. Also, three types of students can be pinpointed according to their technological competencies:

- The students who judge themselves to be competent are a small minority (about 20% of the total).

- A second group is that of the "needy", who recognise the limits of their current competencies and express interest and need of widening them.
- A third group is made up of those who express an interest in distance learning, but at the same time don't feel the need for acquiring specific competencies [4].

The 2.000 university students surveyed in "SPOT+" project were interested in the use of ICT for information exchange, such as 'to ask questions of experts and relevant people no matter where they are' and 'to share information and ideas with people who have similar interests' [5].

Nevertheless, for an instance an anonymous multiple-choice survey self-assessed the spreadsheet skills of students enrolled in first-year units and the results of the survey indicate significant deficiencies in the use of spreadsheets. There is a significant proportion of students who are unable to use spreadsheets as part of their education at the start of their university studies [6].

Also, if almost everyone across Europe is confident that they can read, write and do arithmetic, they are less so when it comes to new key competencies. Only 58% of respondents said they could use a computer. Half of them said they could not use the Internet. The lack of ICT skills is especially marked in Greece and Portugal with two-thirds of respondents claiming they could not use a computer [7].

In Greece there has been a national initiative dealing with the promotion of ICT use by university students called "Des tin Psifiaka.gr" (http://www.destinpsifiaka.gr/), implemented already three times, which funded the purchase of a personal computer from students that passed the panhellenic exams and enrolled in the tertiary education [8]. In the initial phase of the project (2007), 11.586 students from a total of 13.613 registered ones purchased the personal computer of their choice leading to a project's success rate of 85%. In the second phase of the initiative (2008) the purchases of computers were 13.377 and the project's success rate 99%. In the final phase (2009) the registered beneficiaries were 17.789 and the purchases 15.871, thus leading to a success rate of 89%.

Also, through the national initiative "Diodos" (http://www.diodos.edu.gr/), high-speed internet connection (ADSL) is offered in advantageous price to students of higher education, so that they can search information and data, communicate with fellow students and exchange information regarding running projects, attend e-courses, have access in digital libraries, etc [9]. In January 2007 Greek Research & Technology Network (GRNET) conducted a survey among 4.500 of the beneficiaries and the most important findings are: 92% characterises the initiative as «good» or «very good», 74% thinks of the quality of the service provided as «good» or «very good». Half of the interviewed beneficiaries said that they would get an ADSL connection even if the programme did not exist. Moreover, at the current time active internet connections are estimated about 40.000 and the average number of new daily applications is 150.

Consequently, the two above mentioned actions could be characterised as extremely successful and to this direction, a new major national initiative called "e-kpaidefteite.gr: Students' Training on ICT & Programming Competences" trains and gives the opportunity to students to participate (free of charge) in certification exams so as to acquire a certificate on "ICT knowledge and PC skills". This initiative is co-funded by the Greek Ministry of Economy and Finance and the European Union. It concerns the training of students that enrolled in the third grade education of

Greece for the academic years 2005, 2006, 2007. It is being implemented by the GRNET, in cooperation with the Ministry of Economy and Finance, the Ministry of Education and the Ministry of Development. The initiative has a budget of 36MEuros and has provided training to over 55.000 students, through 939 Educational Service Providers. The training started in the summer of 2008 and ended after an extension in the end of November 2008, aiming at 60.000 students all over Greece.

In this paper we present results from the evaluation of the "e-kpaidefteite.gr" project. More specifically, we present results from the application of two separate surveys. The first one aiming at the Students that completed the programme and the second aiming at the Educational Providers that offered the training. The survey is correspondent to the ongoing one implemented in the initiative "Goneis.gr: Training Parents' Training on ICT & Internet Safety" aiming to train the parents of high school children on the issue of safer Internet and how they can protect their children from online threats [10], [11].

2   e-kpaidefteite.gr National Initiative

The beneficiaries of the initiative are all students that passed the panhellenic examinations and enrolled in departments and schools of third grade education in the academic years 2005, 2006, 2007, as well as the students of the Hellenic Open University, independent of their grade. Beneficiaries are also disabled students that enrolled in 3% percentage in all departments or schools at the same academic period. The initiative aims at familiarising and certifying the students with ICT.

For students to get granted for their training and certification, they have to select the educational package of their choice from the e-kpaidefteite.gr web portal and use their "Personal Number", at their registration in the Educational Provider of their choice with a self-contribution of 10% of the total cost of the training. The justifying documents needed to be given to the educational provider are the identity and the student identification or a certification from the beneficiary's department's secretariat.

The initiative's beneficiaries can be educated and get certification on basic, advanced and specialised ICT skills such as: info search on the net/internet services/content search in digital libraries, e-mail, word processing, spreadsheets, web design, network management, video and image processing programs, etc. Students can choose the teaching method they prefer, that is attending lectures/labs, e-learning courses in the Educational Providers' facilities or at their home and finally a blended method (lectures and e-learning). In any case, training's duration is at least forty (40) hours. After the completion of their training, the Beneficiaries have to participate in certification exams so as to acquire a certificate on the educational packages they have attended, in order to get funded by the initiative.

The training of the students is carried out through the cooperation with educational providers that are responsible for the entire training process of each student as far as the educational aspects are concerned. The Educational Providers are participating in the programme according to a number of pre-defined eligibility criteria and should submit their educational packages online at the relative information system (http://www.eduoffers.gr). The information system was developed with the aim to automate the following actions: educational packages' submission in order to get evaluated,

monitoring of the evaluation procedure and beneficiaries' registration in the educational packages of their choice. Educational providers checked the completion of the training by the Beneficiaries, either in the case of face-to-face training (absence keeping), or in case of e-learning by monitoring beneficiaries' log-on hours.

The quality of the training is monitored through a Quality Control mechanism set up by the coordinating organisation. More specifically, sampling checks were implemented based on the training schedule submitted in the information system by the Educational Providers. Specifically for the e-learning courses, the Educational Providers had to state the way they monitor the time Beneficiaries have used the educational packages. If the Monitoring Committee comes up with shortcomings from the Educational Providers' side, penalties are imposed to them.

Educational providers submitted their educational packages online, at the relative information system set up by the coordinating organisation, following the procedure described in the manual available on e-kpaidefteite.gr web portal, or the step-by-step hints existing in the system. In any case Educational providers could contact the Helpdesk set up by the coordinating organisation for additional support.

3   e-kpaidefteite.gr Web Portal

A crucial element that defined the success and dissemination of the e-kpaidefteite.gr initiative is the deployment of a web portal that contains all the necessary information for all the involved parties (Beneficiaries and Educational Providers). The structure of the web portal is fairly simple and easy to comprehend, allowing even the most inexperienced users to navigate through the various pages and get all the necessary information regarding their participation in the initiative.

The overall structure of the e-kpaidefteite.gr web portal is the following:

- The Homepage, that presents the logos of the initiative and the participating organisations. It also gives a brief but comprehensive outline of the initiative.
- The Navigation Menu contains hyperlinks to all the main pages of «e-kpaidefteite.gr» web portal and it is included in all the web portal pages. Its options include:
  - o The Action, with information regarding the initiative, its goals and its Beneficiaries.
  - o Students (Beneficiaries), with information regarding the categories of Beneficiaries that can participate in the action, the way in which they can participate and get informed about the educational packages offered.
  - o Disabled Students, with information regarding the way in which they can participate.
  - o Educational Providers, with information regarding their participation in the initiative and the specifications of the educational packages. This page also provides details on the Educational Providers' obligations and the support of the beneficiaries through the establishment of a helpdesk. The Quality Control Mechanism is also presented in this section.
  - o Frequently Asked Questions (FAQ), with answers in frequently asked questions by the Beneficiaries and the Educational Providers.

Fig. 1. The e-kpaidefteite.gr Web Portal

    o Communication, with information regarding the ways that the Beneficiaries and Educational Providers can communicate with the coordinating organisation of the initiative.

4   Evaluation of Users' Satisfaction

This section aims to analyse the answers provided by the Beneficiaries and the Educational Providers in the survey that evaluated the initiative through relevant questionnaires deployed. The feedback was gathered through telephone communication in the case of the Beneficiaries and through an online questionnaire in the case of the Educational Providers.

4.1 Methodology

The analysis of the answers provided by the Beneficiaries and the Educational Providers is carried out through the use of methods of descriptive statistical analysis (tables and graphical visualisation).

    For the statistical analysis and the creation of the graphs we used the Microsoft Excel, as well as the functions of the open source software LimeSurvey.

4.2 Beneficiaries' Survey

From the overall population of about 55.000 students that have completed their training, approximately 5.141 have been contacted through telephone and 1.556 responses (questionnaires) were collected. The collection of this data took place during 04-08 December 2008.

In the next pages the most important facts and figures from the Beneficiaries' survey are presented. From a total of 1.556 questionnaires, 24 of them were not completed in full (0,01% of the total), so they were not taken under consideration. When using the term "Beneficiary" in this part of the paper, we refer to the Beneficiaries that completed the questionnaire.

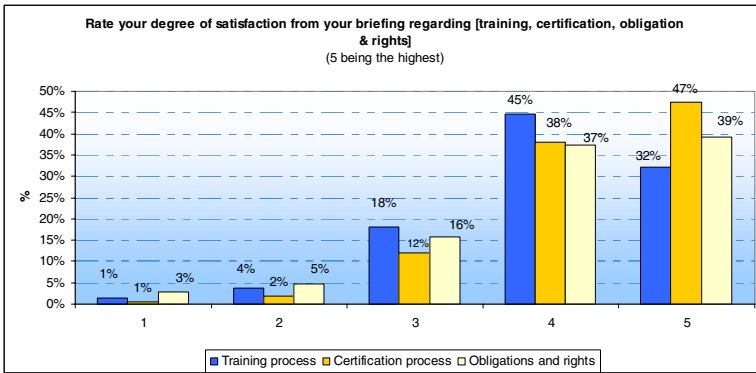From the total of 1.556 Beneficiaries that participated in the survey, 545 (34%) were men and 1.047 (66%) were women.

Fig. 2. Percentage distribution of answers to the question "Rate your degree of satisfaction from your briefing regarding: the training, the certification process, your obligations and rights"

Among the most important findings regarding the Beneficiaries' satisfaction on the training and certification process:

- 32% of the Beneficiaries are fully satisfied (rated with 5 out of 5) with the briefing they received regarding the training process, 47% with the briefing regarding the certification process, and 39% with the briefing regarding their obligations and rights (Fig. 2).
- The most popular need regarding ICT was certification for the Beneficiaries' career with percentage 68%, specialised ICT knowledge with 28%, while info search on the net/internet services/content search in digital libraries follows with 21% and simple skills (e-mail, word processing, spreadsheets, etc) with 13%.
- 30% characterised the knowledge acquired from their participation in the programme as very satisfying, whereas 64% thought of the knowledge as merely satisfying. Only 6% of the Beneficiaries thought of the acquired knowledge to be indifferent.
- Percentages of 33% and 58% of the Beneficiaries think that their training prepared them fully and fully enough, respectively, so that they could handle the certification process.
- 40% of the Beneficiaries are fully satisfied with the e-learning content (rated with 5 out of 5), whereas 43% rated it with 4 out of 5.
- Percentages of 66% and 62% of the Beneficiaries are fully satisfied with their tutors' preparation and the promotion of their active participation in the learning process by their tutors respectively (Fig. 3).
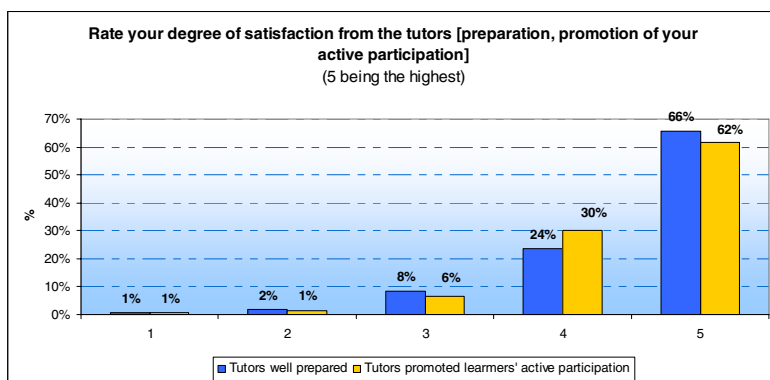
Fig. 3. Percentage distribution of answers to the question "Rate your degree of satisfaction from the tutors regarding their preparation and the promotion of your active participation in the training process"
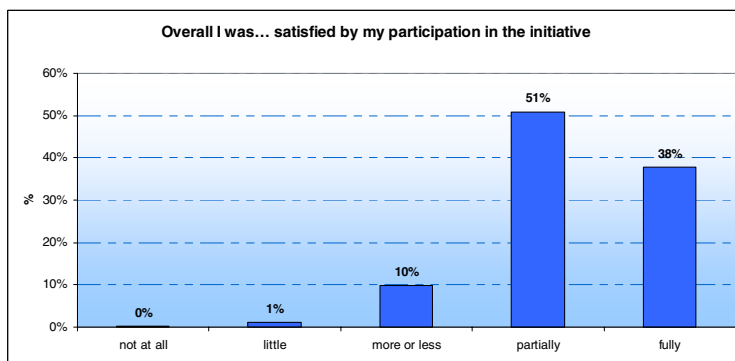

Fig. 4. Percentage distribution of answers to the question "Please rate your overall level of satisfaction from your participation in the initiative"

Among the most important findings regarding the Beneficiaries' satisfaction from the supportive infrastructure:

- 51% of the Beneficiaries are fully satisfied with the technical support and 42% with the facilities where the programme was implemented.
- 79% of the Beneficiaries are fully satisfied with the duration of the initiative, while a percentage of 16% found it insufficient.
- 49% of the Beneficiaries visited the e-kpaidefteite.gr Web Portal whereas 19% did not, since they did not need to do so. 32% of the Beneficiaries were not informed about the portal's existence. 28% of the Beneficiaries graded with "excellent" their degree of satisfaction by the operation of the e-kpaidefteite.gr Web Portal (rated with 5 out of 5), whereas 51% are very satisfied (rated with 4 out of 5).

- 27% of the Beneficiaries did not need to contact the helpdesk, whereas 38% of them did contact the helpdesk to address their questions regarding the initiative. 60% declared that they did not know about the existence of the helpdesk. 53% of the Beneficiaries that contacted the helpdesk characterised their degree of satisfaction as "excellent" (rated with 5 out of 5), whereas 30% of them are very satisfied (rated with 4 out of 5).
- 38% of the Beneficiaries are totally satisfied from their participation in the programme (rated with 5 out of 5), whereas 51% of them are very satisfied (rated 4 out of 5). 10% of the Beneficiaries are partially satisfied (rated with 3 out of 5), while the percentage of the less than satisfied only reaches 1% (Fig. 4).

4.3   Educational Providers' Survey

The Educational Service Providers that participated in the initiative were 939. After contacting all of them via e-mail, 336 provided their feedback in an online version of the evaluation questionnaire up until late January 2009.

Among the most important findings regarding the Educational Providers' satisfaction from the initiative:

- 52% of the Educational Providers rated their degree of satisfaction on the e-kpaidefteite.gr web portal as excellent (rated with 5 out of 5), 47% rated their degree of satisfaction by the helpdesk support as excellent, and 51% were fully satisfied with the information system handling their offers (Fig. 5).
- 52% of the Educational Providers are fully satisfied with the initiative as a whole, whereas 42% of them are very satisfied. 5% of the Educational Providers are partially satisfied, while 1% of them are less than satisfied (Fig. 6).
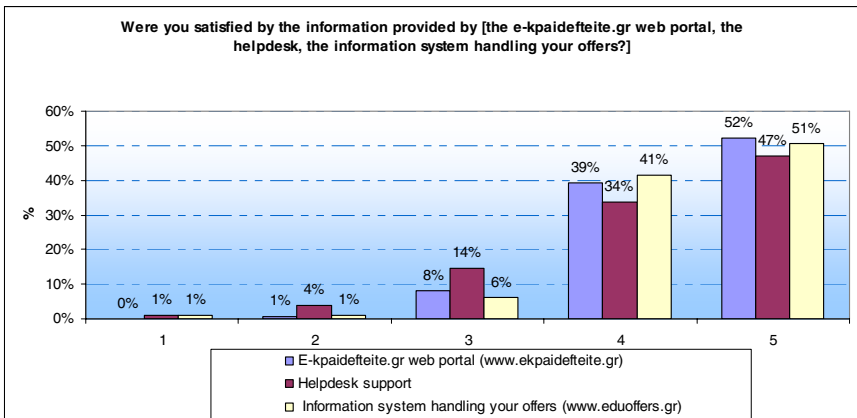

Fig. 5. Percentage distribution of answers to the question "Please rate the degree of your satisfaction from: the e-kpaidefteite.gr Web Portal, the Helpdesk and the information system handling your offers"
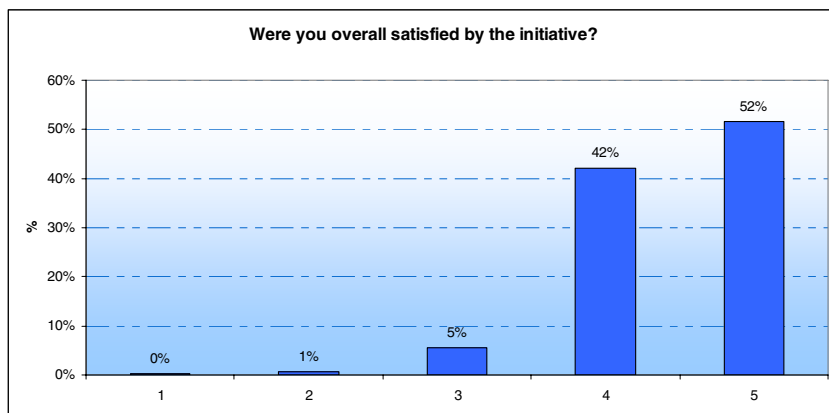
Fig. 6. Percentage distribution of answers to the question "Did the initiative satisfy you as a whole (i.e. in terms of training, organisation, etc)?"

5 Conclusions

Summarising the main points that concern the evaluation of the e-kpaidefteite.gr initiative:

The respective percentages of Beneficiaries and Educational Providers that are more than satisfied with the initiative are over 80%, which indicates that the initiative is successfully deployed in all of its aspects (promotion, implementation, administrative, etc.)

Focusing on the Beneficiaries, their satisfaction regarding the initiative and its services equals with 4,25 in the 5-grade scale, whereas the Educational Providers' satisfaction is of the same level (4,28 in the 5-grade scale).

The e-kpaidefteite.gr Web Portal is widely praised both by the Beneficiaries and the Educational Providers indicating the quality and high functionality of the Web Portal.

The helpdesk support is also highly appreciated by all participants of the initiative indicating the willingness and high level of support that the helpdesk staff provides.

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