



In-service ICT training of Greek primary schools teachers and related factors

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ABSTRACT

The aim of the present study is to investigate the factors related to ICT skills development of the primary school teachers and the usage of it in teaching. Findings of our research study revealed that teachers' age, their gender and their past experience of ICT training play an important role. Also, their satisfaction from the organization of training and usage of teaching methods and techniques of trainers had a positive influence in their skills and usage of ICT in teaching.

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Introduction

Every educational policy is inevitably connected to the political ideology and the programmed planning of each government. All the efforts are influenced and adjusted to the international developments and also to the special needs of every society. In-service training is based not only on the initial education of teachers, but its function is directly related to social, political, cultural and educational conditions that determine the particular educational system at the particular temporal period of time (Mavroyiorgos, 1999). In-service training is supported by the technocratic perception about society's investment in human capital.

Theorists pinpoint that through in-service training the chance equality of an individual in taking an occupation in the labor market is enhanced and simultaneously he/she gains expertise in order to cope with the demands of a changeable era. So, in-service training can be characterized as an answer to the changes that occur in people's lives and it assists in their adjustment to new conditions (Vergidis, 2003).

On the other hand, conflict theories defend that the total structure of the information society simply legitimizes societal inequalities by putting emphasis on technical connections and leaving aside social relationships. Therefore, we can not analyze teachers' performance separately from the institutional and legislative limitations of primary schools' operations (Grollios, 1999).

Also, teachers are social actors, who interact with the students and their families in the school framework. Teachers are influenced by their colleagues and the administration of the educational system and they are forming an informal culture with which they face the social structure of the school. From within these systems they receive feed-back, get influenced, and experience solidarity; they are also led to initiatives and innovations, thus developing their social identity, social capital, networks and, what is more, their social trust. Their professional developments through training support them and, most times, dispel inhibitions, insecurities and social and institutional pressure, which could confine their educational activities and their teaching effectiveness.

Historical Review of Professional Development in Greece

In Greece, the integration of educational changes is proved by the effort of promoting lifelong learning through the establishment of corresponding educational institutions and enhancing networks for the upgrading of education and training. In addition to that, legislative interventions in lifelong learning have been developed and attempts are being made to set up a better vocational system for providing certified knowledge for building skills connected to the labor market. For this reason, the options of activating the National System Linking Vocational Education and Training with Employment (ESSEEKA), the National Certification Centre (EKEPIS) and the Organization for Vocational Education and Training (OEEK) are deeply involved in this matter.

Apart from the Law 3369/2005 "Systematization of Lifelong Learning and other provisions", the Recommendation of the European Parliament of 18 December 2006 on key competences for lifelong learning, the Council Resolution of 15 November 2007 on new skills for new jobs and the report of the Council and the Commission on the implementation of the work programme "Delivering lifelong learning for knowledge, creativity and innovation" all point out the importance of searching for education and training opportunities, guidance and support essential for an individual's professional development and social integration (Council of the European Union, 2008, p. 2).

The promotion of lifelong learning continues not only with the implementation of various governmental strategies, but with the co-financing of different innovative and developmental projects such as the current project named "The National Strategic Framework of Reference (ESPA) lasting from 2007 to 2013, co-financed by the European Union and the Greek nation. One of the Sectoral Operational Programmes named "Education and Lifelong Learning" (also co-financed by the European Social Fund (ESF) has the aim of organizing education and lifelong learning in order to be concretely effective: an active participation in society, smooth mobility in the workplace and a minimization in the levels of both drop outs from school and in unemployed people (Eurydice 2009, pp. 30-32). Moreover, an

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emphasis is put on students with disabilities and on those students, who belong to at-risk social groups with particular educational needs, such as minorities, immigrants, repatriates and others. This stresses the necessity of implementing a cross-cultural educational strategy and other strategies to achieve inclusion.

With the programmes based on implementing innovative uses of ICT for lifelong learning and characterizing ICT as a factor in fostering innovative skills like problem solving, critical thinking, learning by doing and creativity, the important role of ICT in education becomes visible (European Commission, 2010).

In Greece, the history of lifelong learning starts in 1929, mainly with the foundation of Evening Schools named "Esperina Scholeia" for adults who have not succeeded in completing the compulsory educational cycle. The foundation of the Central Committee Against Illiteracy (KEKA) and the Prefectural Committees of Popular Education (NELE) are followed by the update of the Institution of Adult Education by the creation of the Directorate for Adult Education at the Ministry of Education, which was later named the General Secretariat for Adult Education (GGEE) and in 2008 became The General Secretariat for Lifelong Learning. Later, the Institute of Continuing Adult Education (IDEKE) was established with the aim of supporting and providing programmes for the continuing professional development of adults. This institute also aspires to incorporate information and communication technology in the use of modern educational multimedia and software.

Among those who participate in educational programmes are teachers of primary schools in order to learn updated approaches to teaching such as "learning by doing" and learning by thinking critically instead of rote learning (learning by heart). Besides that, many teachers are trained in utilizing new technologies for teaching, while various educational software and on-line materials are provided by the Ministry of National Education. In addition to these, there is also a website on which they can develop their communication with other teachers. This is a proof of the statement that if only there are well trained teachers, Greek schools can reach an advanced level both in providing knowledge and helping students to achieve fully realized personalities (Eurydice 2009, pp. 42- 51).

Moreover, their training should be a continuous process, comprising both optional and mandatory activities, with the aim of fostering the teacher's personal and professional development from his/her entrance to the profession until the retirement period (Xochellis, 2007).

Furthermore, several studies in Greece have pinpointed the necessity of in-service training as well as its contribution to the performance improvement of the educational process (Fokiali, Kouroutzidou & Lefas, 2005).

ICT teachers' training in Greece

From middle of the 1980s an intense and systematic process began about integration of ICT in Greek educational system. In 1996 the first in-service school programmes applied concerning the secondary level teachers' training in ICT. Some researches which were conducted in Greece and concerned in-service teachers' training in ICT revealed the following: a) trainers in ICT programmes appeared to use mostly traditional teaching techniques since there was a lack of 'adult education' teaching techniques (Kokkinopoulos, 2006), b) there was a change concerning the knowledge and skills of those teachers who

attended the programmes (Karakasidis, 2005), c) the previous knowledge affected at a great percentage the teachers' present knowledge level of improvement (Zagouras, 2005; Malama, 2005) and d) the use of ICT in the teaching process was highly increased after the completion of these training programmes.

The aim of this particular paper is to investigate the factors, which influence the development of teachers ICT skills and the usage of them in teaching practices concerning teachers training in ICT, their satisfaction of the training process and usage of teaching methods and techniques of educators of their training process.

Method

Sample

The sample of this particular research consisted of 162 primary school teachers, who had participated in certain in-service ICT training Programmes in Northern Greece (population 2,828 primary school teachers). They worked in schools that belonged to the municipality of Thessaloniki in Northern Greece. 70 of them (43.2%) were male, while 92 (56.8%) were female. The mean concerning the teachers' working years of the sample was 14.14 (S.D. = 6.72).

Questionnaire

A questionnaire concerning the teachers' training in ICT was used. It included five thematic areas: a) Reasons for attending the programmes b) Satisfaction and teaching methods deriving from the programmes in ICT. c) Knowledge and skills concerning ICT after the completion of the programme, d) Attitudes related to ICT after the completion of programmes and e) Frequency and duration of training in ICT that they prefer. An analysis of the evaluation results (Mean = 4.9) showed that the content validity of the questionnaire is adequate. In addition, the reliability coefficient for the split-half test was 0.93 and the internal consistency reliability coefficient was 0.96.

Findings

In order to achieve the best analysis regarding the opinions of those teachers who had attended the training programmes in ICT, the method of factor analysis was used. Furthermore, the method of principal component and the squarely rotation of axes was used. The criterion of eigenvalue and the diagram of factors were also used so as to designate the number of factors which present a load larger than 0.40. Through the factor analysis of the questions and based on the eigenvalue -that should be greater than 1- the solution of the three factors was adopted. These three factors interpret the total 63.65% concerning the overall distribution (Kaiser-Meyer-Olkin Measure of Sampling Adequacy: .925).

In particular, the following factors came up: a) Skills and usage of ICT, which interprets the 38.98% of the overall distribution. 18 questions were included. The mean was 3.18 and the standard deviation was 0.85. The index of the internal consistency Cronbach alpha was .96. b) Usage of teaching methods and techniques, explains the 16.25% of the overall distribution. 7 questions were included. The mean was 2.75 and the standard deviation 0.58. The index of the internal consistency Cronbach alpha was .90 and c) Organisational satisfaction, interprets the 8.43% of the overall distribution. 4 questions were included. The mean was 2.46 and the standard deviation is 0.54. The index of the internal consistency Cronbach alpha was .83 (Table 1).

From our model we can argue that "Organizational satisfaction" of training process in ICT programs, past training experience and "Usage of teaching methods and techniques" in

training programs had a positive influence in the development of ICT skills and in usage of ICT in teaching. Also, the age of teachers had a negative relation with the development of ICT skills and usage of ICT. Finally, we can refer that male teachers had a more positive attitude against the usage of ICT and developed more their ICT skills than females (Table 2).

Discussion

From the data collected by our research it is revealed that the appropriate planning, the proper organisation and the functional conduct of training in the ICT support its introduction in education. The key role is teaching methods and techniques, which trainers use. From international bibliography is expressed that organizational and teaching processes influence the teachers' attitudes against integration of ICT in schools and increases their motives (Teo, 2006), provide knowledge and skills (Pelgruin, 2001) and develop their self-confidence (Lukas, 2005). On the other hand, the younger teachers came into contact with modern cognitive tools as the means of their developmental environment and expressed a greater suppleness concerning their way of management and comprehension (Tondeur, Valcke et al., 2008). Simultaneously, the older teachers had already structured cognitive schemes based on former social patterns, while it was difficult for them to alter their teaching practices to established learning standards (Pavlou & Vryonides, 2009). Also male teachers more than their female colleagues appear to develop their ICT skills and use new technologies in the teaching processes. This is in accordance with most of the Greek and international bibliography (Smeets, 2005. Pavlou & Vryonides, 2009).

The need for the teachers' continuous education is essential for the globalised and alternating post-modern environment. Based on the findings of this research it is essential that we should take into serious account the principles of Adult Education during the planning of the training programmes. Also, the analysis of the training needs of teachers indicate that the establishment of a functional frame of training programmes should ideally keep pace with the new cognitive tools that are continuously emerging and with the experience, age and gender of teachers.

Teachers constitute a social team of professionals that directly contribute to the operation of the educational system. Their education and training is influenced by the broad structural and institutional procedures of both the educational system and the ideological and political framework. So, it is important for the Greek educational system to reorganise the ICT training programmes based on personal factors of teachers (age, gender, experience) and contemporary teaching methods. Additionally, a change of teachers' culture and a research of their conceptualization of the educational system is more than a demand of the educational society. Finally, educational policy makers should design more functional scopes for the educational system according to the new political and societal environment in Greece (economic and political crisis, family structure changes, etc.).

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Table 1: Extracted factors and its loadings

Questions	Factors		
	1	2	3
Can you organize your digital information (files)	.897		
Can you use the educational software that concerns the courses you attended?	.881		
Are you able to use an internet service?	.875		
Can you handle at ease a PC?	.866		
Can you describe the steps for the creation of an archive file?	.842		
Can you describe the basic PC software categories?	.840		
Are you able to make those actions that concern the creation, format, storage and modification of a Word document?	.832		
Can you send an electronic mail with an adjusted archive?	.831		
Are you able to get connected to the Internet and seek information	.802		
Are you able to make those actions that concern the creation, format, storage and modification of an Excel document?	.792		
Can you use simple mathematic forms and use simple connections/interrelations (e.g. for sum or mean calculation) in the Excel?	.780		
Are you able to make those actions that concern the creation, format, storage and modification of a PowerPoint presentation?	.755		
Can you describe alternative teaching methods in which ICT is used?	.743		
Can you identify the basic material parts of a PC?	.732		
Do you use approved educational software for the empowerment of your teachings methods?	.718		
Do you use a video projector and the PowerPoint for the presentation of your teaching?	.664		
Are you familiar with the directives/instructions of the Ministry of Education – the Pedagogic Institute concerning ICT?	.602		
Do you use the Internet for paying accounts, banking transactions, tax statement, purchases etc.?	.508		
Were the teaching methods adapted to the teachers' abilities and needs?		.831	
Did the educator use educational techniques (demonstration, role plays, brainstorming etc.) apart from lecturing?		.822	
Did the educator connect the teaching material to your interests?		.806	
Did the educator determine with clarity the objectives of each instructive unit?		.750	
Were the teaching methods adapted to the objectives of the Training Program?		.748	
Were the exercises and the activities of the training material suitable?		.698	
Did the educator have fluency in the use of the training material?		.654	
Are you satisfied with the date that the training programmes in ICT were carried out?			.738
Are you satisfied with the briefing process that concerned the offered programs?			.581
Are you satisfied with the duration of the program?			.493
Are you satisfied with the material and the operation of the laboratory?			.434

1: Skills and usage of ICT; 2= Usage of teaching methods and techniques; 3= Organizational satisfaction

Table 2. Linear Regression

Independent variables	C	R	R ²	F	P	Beta	t	p
Age						-.392	-4.33	.000
Gender						-.525	-4.72	.000
Organizational satisfaction	4.142	.590	.348	14.329	0.00	.241	2.01	.007
Training						.102	2.63	.009
Usage of teaching methods and techniques						.227	2.08	.019

Note: Dependent Variable: Skills and usage of ICT