

Original Article

Investigation, Recording and Assessment of Professional Education Needs of the Health Sector Personnel in Greece via Delphi Technique

Magdalini Vova-Chatzi, PhD

Department of Social and Educational Policy, University of Peloponnese, Corinth, Greece

Maria Saridi, PhD

Director of Nursing, General Hospital of Korinthos, Greece and Research Fellow, Faculty of Social Sciences, University of Peloponnese, Corinth, Greece

Xenophon Contiades, PhD

Professor of Public Law, Panteion University and Managing Director, Centre for European Constitutional Law, Athens, Greece

Athanasios Jimoyiannis, PhD

Professor, Department of Social and Educational Policy, University of Peloponnese, Corinth, Greece

Kyriakos Souliotis, PhD

Associate Professor of Health Policy, Department of Social and Educational Policy, University of Peloponnese, Corinth, Greece

Correspondence: Maria Saridi, PhD, Director of Nursing, General Hospital of Korinthos, Greece and Research Fellow, Department of Social and Educational Policy, University of Peloponnese, Corinth, Greece, Sina 33 str. Corinth. Greece. e-mail: sarmar32@windowslive.com

Abstract

Background: Continuing Professional Education is an ongoing process which aims at ensuring that knowledge and skills of an individual are constantly adjusted and meet the evolving job requirements and labor market needs.

Purpose: The present study aims to describe, analyze and document the employee training needs, as well as to propose the optimal ways of achieving it, in order to contribute to the enhancement of the quality of the offered training, as well as to the further development of the Health Sector personnel.

Material and Method: A three-round e-Delphi method was undertaken, using a panel of 103 experienced Health professionals throughout Greece.

Results: Through the present study, some of the problems that hinder CPE were emerged (such as the absence of a systematic personnel training plan by the central administration of the State, the lack of financial and human resources, the absence of interconnection between the training process and the employee performance and evaluation). The research study showed that for a better and more efficient health system, health workforce training should be designed and organized through a systematic plan for the Analysis of Educational Needs. The health workforce training should also be holistic including learning objects related to the population, the employees' workplace, the patient and the knowledge, with different priority per each personnel category.

Conclusions: The present study can be a useful tool for health policymakers in the field of professional training. In times of economic crisis with the lack of financial resources, upgrading and empowering Health Sector personnel according to the demands and needs of society is necessary more than ever.

KeyWords: Delphi method, Continuing Professional Development, Health Professionals, Professional Needs.

Introduction

Human capital is the main factor of production worldwide nowadays. The acceptance of the concept that the initial professional training is

sufficient to provide the knowledge and skills in the professional life of a person is no longer valid. There are countless signs globally showing that investing in Continuing Professional Education (CPE) is vital. This is because it can

enhance the economic and competitive performance at individual, organizational and societal level (EQUIP & EURACT, 2002; European Commission, 2014).

The necessity of CPE, both for employees themselves and by extension for the organizations, has emerged from various studies and surveys. The CPE aims at maintenance, renewal, upgrading and modernization of professional knowledge and skills of the individual, with the main objectives of his integration labor market, professional development and personal growth (Needleman et al., 2002; Stanton, 2004; Kane et al., 2007). Some of the benefits of CPE are indicatively the increase of productivity, efficiency and effectiveness (Aiken et al.,2002; Cho et al.,2003; Guest et al.,2004) and the better quality health care to patients (Brown et al.,2002; Needleman et al.,2002; Makrydimitris & Yfantopoulos,2004; Pena & Alonso,2006; Association of American Medical Colleges & American Association of Colleges of Nursing,2010; Yfantis et al.,2010; Bamrah et al., 2011).

Many countries of the European Union lack a comprehensive health workforce strategy and a health policy plan and many of them have reduced the spending which is invested in education (European Commission, 2014; HW4All, 2014). In Greece, the lack of basic planning and programming structures combined with the inadequacy of establishing an efficient mechanism of monitoring, control and evaluation of the provided CPE for a long time, contributed to the lag of our country in this field. The current situation, therefore, which is characterized by the inadequate linkage between education and employment markets, the ongoing requirements, the geographical inequalities and problematic demography of the health professions, necessitates the additional specialization and retraining of employees in order to ensure the smooth functioning of the global market (Souliotis & Lytras,2004).

The studies concerning the human resources of the health sector in Greece are mainly oriented to the quantitative shortcomings (Ministry of Health, 2012; Skroubelos et al., 2012) and less to the systematic collection and evaluation of information on the investigation, recording and evaluation of the vocational training needs of the health care personnel (Kyriopoulos & Soulis, 1998; Ministry of Health,2004; Pierrakos et

al.,2006). It appears that these concepts are not the main priorities for health policymakers.

Studies that individually address various aspects of training in specific categories of health sector personnel have been made. Indicatively, in terms of its necessity for completeness and development of human resources (Karanikola et al., 2008; Kamariannaki et al.,2017), whether or not opportunities are given for continuing education (Makrydimitris & Yfantopoulos,2004; Panagiotopoulou & Brokalaki,2012), in its mandatory or non-mandatory form (Politi & Souliotis,2013), and the main obstacles to monitoring training programs (Yfantis et al.,2010; Politi & Souliotis,2013). Our research is the first study in the Greek area where we investigate at the same time the motives and the obstacles for the participation of four categories of health professionals in training programs, the preferable means of their training and the classification of the subjects of their most interest, giving a structured picture of the existing system training. The ultimate goal of this study was not to provide ready answers relative to the training needs. Our priority focused on mapping the current training situation so that political leadership to set the direction of a more targeted research. At the same time to open a systematic dialogue on the training needs of the health care staff in our country based on scientific data. Specifically, the detection of training needs, the inventory of the problems and ways of solving them, the investigation and recording of thematic training fields of priority, as well as the imprint of the executives' experience, will enable in the long term shaping and development of a human resources training and assessment mechanism. The main objective is to elaborate basic methodological guidelines for the development of a system for the detection of educational needs and, secondly, to develop a mechanism for providing and evaluating training in human resources. Furthermore, it will contribute to the achievement of a future healthcare reform.

Methods

Research design: A three-round e-Delphi method was undertaken. The Delphi technique is well suited as a method for consensus-building, and is recommended in cases of repeated collection and controlled feedback from experts on particular issue through questionnaires, in order to achieve the maximum possible reliable

consensus (Hsu & Sandford,2007; Irvine et al., 2012).The Delphi method is a qualitative approach that can be used when there is a lack of data and not enough objective and measurable indicators for the subject under consideration (Hasson et al.,2000; Linstone & Turoff,2002; Donohoe & Needham,2009). In Greece, the examination of vocational training needs concerns such an examination issue. Through the knowledge and experience of the experts involved in this process, we have been able to make reasonable and reliable predictions for the future with regard to the specific issue which could not be achieved by any other method. With this method, we wanted our study to be useful to policy-makers in Greece and set new goals for modernizing and developing a system for investigating the needs for vocational training of human resources in the health sector. Something that was achieved by the convergence of views of the experts (representing all four categories of healthcare professionals) and thus by finding the most commonly accepted solutions and proposals.

Pilot Study: A pilot data collection test was carried out with a representative sample of technology personnel (28 people), from mid-April to early July 2012. The research data collection was conducted electronically by e-mail in three rounds, and was completed in early May 2013. The final data analysis was completed in late August. The necessary items for training resulted from the convergence of the views of the experts in the pilot study.

Data collection: The overall target population of the present study concerns the health sector professionals in the Public and Private sector, and is represented by four categories: medical, administrative, nursing and technology personnel. The main selection criterion of experts was the professional experience and capacity in the health sector, as a percentage ratio of 75% from the public and 25% from the private sector. In more detail, the participants in the present study were public and private hospital managers, personnel (doctors, nurses, administrators and technicians) who works in National Health System (NHS) hospitals, in health centers, in Administrative Health Regions (AHR), in the Ministry of Health, in private hospitals and clinics, in Academic centers and Universities, in health teaching agencies, and in laboratories. Another selection criterion of the sample was the geographical distribution. Thus, experts with professional experience from the non-urban

regions (province) and not only from the large urban centers (Athens and Thessaloniki) were included in the study, in order to achieve sample representativeness of executives per region of Greece (including all seven AHR). In this way, on the one hand the homogeneity of the sample at regional level was ensured, and on the other hand the training needs and problems faced by the workforce in the non-urban areas (province) were emerged in the best possible way possible (for example the geographical distance, fewer funds etc.). In numbers, a total of 103 experts participated in the present study. Specifically, twenty five (25) experts for each personnel category (medical, administrative and nursing). Twenty-eight (28) experts from technology personnel, who initially involved in the pilot study, and due to their very satisfactory response and cooperation, were all included in the main survey.

Questionnaire: The questionnaire consisted of eight major and 6 sub-questions of closed and open type. The questions of the questionnaire (Question 1-Question 7) were the same for all categories of the executive personnel, with the exception of Question 8, where the training modules were selected to represent each sector respectively. In this way, the questionnaire was formulated with two major sections described as follows:

A. Introductory elements of the experts' sample:

- Demographic characteristics; working status; professional and educational profile,
- Elements which determine the respondents' view for the CPE (Questions 1-7).

B. Selection of the first and second priority sections regarding the professional training of the respondents (Question 8).

It is noted that two questions (Sub-Question 1.1 and Question 3) were answered by a Likert four-point rating scale (Not at all, Moderately, Very, Extremely).

Data Analysis: In the present study, the Social Sciences Statistical Package (SPSS 18.0 software) was used for statistical analysis and control purpose. Data analysis included the calculation of descriptive statistics measures; graphical representation of the frequency distribution of the data collected. Moreover, the observed change of participants' responses between the three rounds of the Delphi method was taken into account and interpreted. The derived results are satisfactory since consensus and stability seem to be achieved as indicated by

the observed trend towards the percentage increase of agreements, convergence of importance rankings, Kendall's coefficient (strong consensus for $W > 0.7$; moderate consensus for $W = 0.5$; and weak consensus for $W < 0.3$), and reduction in the number of comments as the rounds progressed. Agreement with statements was summarized by using the median scores and measures of dispersion (Hasson et al.,2000; Linstone & Turoff,2002; Hsu & Sandford,2007; Holey et al.,2007; Habibi et al.,2014;).

The hypothesis testing was conducted using Pearson correlation coefficient, also referred in the literature to as the Pearson's r or Pearson product-moment correlation coefficient (PPMCC). Several linear correlations were applied to the sample survey and the corresponding correlation coefficients were estimated and interpreted. In particular, the linear correlation between the assessment of training needs of the employees with the socio-demographic, labor and professional-scientific-cognitive characteristics was examined for each case. Moreover, the chi-square independence test results were recorded and interpreted for each of the four categories of health workforce.

Ethics: The experts consensus for participating in the present study, as well as maintaining the anonymity of the data and persons, was ensured both verbally (by telephone) and by e-mail.

Results

Round 1: The need and importance of employees training at workplace (with rate "Extremely") emerges in the very first round with 84% for the medical personnel and with 88% for the nursing personnel respectively. The ideal time for conducting training programs is within working hours, as supported from the majority of respondents; in particular with a percentage of 40% for the administrative personnel, 52% for the medical, 60% for the nursing, and 64.3% for the technology personnel, respectively. However, it is also stated that it is good to exist a time flexibility for conducting training programs either within working hours or outside working hours, depending on whether the programs are of short duration or long duration, respectively. The preference for short duration training programs is due to the lack of time recorded, the professional obligations, as well as the personnel shortage, with the latter being accentuated after the economic crisis.

Round 2: The majority of the sample prefers training by a public organization with corresponding percentages of 88% for the administrative personnel, 76% for the nursing personnel, and 60.7% for technology personnel, respectively. The medical personnel mainly prefers training programs organized from scientific organizations with a percentage of 92%. Technology personnel also prefer scientific organizations for their training with a percentage of 60.7%. Universities or other academic centers in Greece or abroad are preferred as training institutions from all categories of the personnel under study. Then, follows the workplace itself, European training centers and the health regions in which the health organizations and stakeholders belong to. Finally, all experts concluded that the success of a training program depends on the skills and experience of the institution that will implement it. A percentage of 56% of the medical personnel, and 67.9% of the technology personnel believe that opportunities are not given at all for participating in ongoing training, whereas 52% of nursing and administrative personnel consider that the opportunities given are sufficient. The fact that the majority of the participants considers that few opportunities are given, indicates that CPE is not a priority for the public administration of the state.

Round 3: The importance of job training (rate "Extremely") is emerged from the administrative personnel with a percentage of 76% as well as from the technology personnel with a percentage of 71.4%, while after conducting the two previous Delphi rounds medical and nursing personnel also agreed on the necessity of job training with a percentage of 88% and 96%, respectively. In particular, the latter ones expressed absolutely their expectation in one hand for both improving personnel skills and the provision of services and on the other hand the improvement of the health system response to continuing developments of health care service know-how, which in many cases raise issues of restructuring of work organization and the process production. The main benefits of CPE (Table 1), as estimated by the health workforce are: the improvement of efficiency through the acquisition of new knowledge and technologies. The influence on decision-making, is mainly observed on the medical, administrative and technology personnel. The result of the health services quality improvement due CPE is considered as important only by the nursing

personnel with a percentage of 36%.

In contradiction, the earnings improvement and the progress in the job position or the professional development are not considered as such important benefits of the CPE according to the experts' panel opinions. The earnings improvement is mainly considered as important from the medical personnel (with a low percentage of 20%), while professional development is considered as important, ranked in order of importance, with a percentage of 32% from the medical personnel, 24% from the administrative personnel, and then follow the rest personnel categories. However, although the vast majority of experts believe that the continuing training is very necessary, there is a difficulty, on behalf of the executives, in the assessment of the improvement of personnel skills and its benefits, as well as the assessment of the provided services of stakeholders after the completion of training programs.

As regards the training means which are usually used in the health workforce for the evolving trends in this profession, or more broadly in health services, the highest percentage corresponds to the participation of seminars for the three categories of employees: 100% for the administrative personnel, 96% for the nursing personnel, nurses and 82.1% for the technology personnel, respectively. The 100% of the medical personnel, the 92% of the administrative personnel, and the 84% of nursing personnel prefers articles and books. Participating in conferences is being preferred from the nursing personnel with a percentage of 76%, and from the technology personnel with a percentage of 64.3%, respectively. The percentage of the health

workforce who prefer to be informed by other means (Table 2), including free access to online sources- bibliographic databases, distance learning, or by specialized working groups in the workplace as well as by thematic forums with specialized executives, is remarkable. The main reasons for not participating in training programs are economic reasons as pointed out by almost all respondents and the professional commitments (particularly for the medical, nursing and technology personnel). This position, largely confirms the need to facilitate participation of employees in training programs by forming flexible training schedules, providing special training leave, giving the potentiality of workflow services continuation. Moreover, several other factors are considered to be an obstacle for continuing training such as the lack of a systematic personnel training plan, the non equal given opportunities, the lack of motivation and guidance of employees workers, and the absence of a continuing training culture (Table 3). According to the experts' opinions the aforementioned factors are absent because the experts that determine the continuing training needs of health professionals, are influenced by political, organizational and other public directions, resulting in different perceptions and priorities in this regard. Emphasis is given to the non-right-oriented education programs regarding the real labor needs per sector and the non-good organization. Thus, training programs cannot be evaluated for the knowledge and experience gained from these programs, or for their application and contribution to upgrading skills of employees, or for the improvement of patients' outcome, and their contribution to the health system needs.

Table 1: The main benefits of CPE

Human Resources	Knowledge of new methods & technologies. Improvement of profitability.	Professional Development	Improving Earnings	Decision Making	Services Quality Improvement
Administrative	40%	24%	12%	24%	0%
Medical	24%	32%	20%	24%	0%
Nursing	32%	12%	12%	8%	36%
Technology	41%	18%	9%	32%	0%

Table 2: Preference of Training Means

Human Resources	Free access to online sources-bibliographic databases	Distance Learning	Specialized working groups in the workplace	Thematic forums with specialized executives	All recommended means
Administrative	28%	20%	16%	36%	0%
Medical	54%	21%	17%	8%	0%
Nursing	32%	32%	14%	9%	13%
Technology	21%	50%	18%	11%	0%

Table 3: Obstacles of Continuing Training

Human Resources	Administrative	Medical	Nursing	Technology
Training is not connected with employee evaluation & performance	40%	24%	32%	32%
Lack of a systematic personnel training plan, & the non equal given opportunities	24%	32%	27%	0%
Lack of log-book & lack of funds (per employee, per year)	20%	12%	14%	29%
The training is not compulsory	4%	8%	14%	21%
Lack of personnel	12%	16%	9%	18%
All aforementioned	0%	8%	4%	0%

Table 4: Health Unit (Nursing Personnel) Crosstabulation

			"Is there another way to eliminate the problems of the non-continuing professional education?"		Total (%)
			No	Yes	
Health Unit	Public	Total (%)	2 (66.7%)	16 (72.,7%)	18 (72.0%)
	Private	Total (%)	1 (33.3%)	6 (27.3%)	7 (28.0%)
Total (%)			3 (100.0%)	22 (100.0%)	25 (100.0%)
Chi-Square Tests					
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.048 ^a	1	.826	1.000	.645
Continuity Correction ^b	.000	1	1.000		
Likelihood Ratio	.047	1	.829		
Fisher's Exact Test					
Linear-by-Linear Association	.046	1	.830		
N of Valid Cases	25				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is ,84.

b. Computed only for a 2x2 table

Table 5: Health Unit (Technology Personnel) Crosstabulation

			"Is there another way to eliminate the problems of the non-continuing professional education?"		Total (%)
			No	Yes	
Health Unit	Public	Total (%)	4 (66.7%)	15 (68.2%)	19 (67.9%)
	Private	Total (%)	2 (33.3%)	7 (31.8%)	9 (32.1%)
Total (%)			6 (100.0%)	22 (100.0%)	28(100.0%)

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.005 ^a	1	.944	1.000	.650
Continuity Correction ^b	.000	1	1.000		
Likelihood Ratio	.005	1	.944		
Fisher's Exact Test					
Linear-by-Linear Association	.005	1	.945		
N of Valid Cases	28				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1,93.

b. Computed only for a 2x2 table

Table 6: Health Unit (Medical Personnel) Crosstabulation

			"How can the problems of the non-continuing professional education be eliminated?"				Total (%)
			E-learning	Specialized working groups in the workplace	Thematic forums with specialized executives	Distance Learning	
Health Unit	Public	Total (%)	9 (69.2%)	2 (50.0%)	0 (0%)	3 (60.0%)	14 (60.9%)
	Private	Total (%)	4 (30.8%)	2 (50.0%)	1 (100.0%)	2 (40.0%)	9 (39.1%)
Total (%)			13 (100.0%)	4 (100.0%)	1 (100.0%)	5 (100.0%)	23 (100.0%)

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.137 ^a	3	.544
Likelihood Ratio	2.466	3	.482
Linear-by-Linear Association	.377	1	.539
N of Valid Cases	23		

a. 6 cells (75.0%) have expected count less than 5. The minimum expected count is .39.

Tables 4-5 present the correlations between the variables "Health Unit: Nursing Personnel" and "Health Unit: Technology Personnel with the responses to the question "Is there another way to eliminate the problems of the non-continuing professional education?". respectively. Specifically, there is a statistically significant

difference in relative frequencies of responses among those belonging to the public sector and those belonging to the private sector, with the latter ones consider that there are no other ways of eliminating the problems of non continuing professional education, in contradiction with those of public sector.

As regards the question “How can the problems of the non-continuing professional education be eliminated?”, the results presented in **Table 6**, indicate that there is a correlation between the responses to this question and the variable “Health Unit: Medical Personnel”. Specifically, there is a statistically significant difference in relative frequencies of responses among those belonging to the private sector and those belonging to the public sector, with the medical personnel of the public sector to rate more positively the e-learning for eliminating the problems of non continuing professional education.

The chi-square independence test results among experts of public and private sector (in each personnel category), regarding their point of view for the priority emphasis of thematic units of continuing professional education, indicates the existence of dependence. In particular, there is a statistically significant difference in relative frequencies of responses among those belonging to the private sector and those belonging to the public sector. There was no other statistically significant finding regarding the rest thematic units. The interested reader may refer to Tables 7-10 in the Appendix, for more details and estimation results regarding the thematic units for each personnel category.

The thematic units of training considered to be highly necessary (1st choice) and secondary priority (2nd option) by category of health professionals are presented in Table 11. There is a tremendous emphasis on the administration and organization of health services. Priority in all areas is Health and Safety at Work. The same applies to continuing training and self-learning skills. Biostatistics is an indispensable tool in the field of health as well as the need to evaluate both staff and executives for a more effective and efficient healthcare sector.

Discussion

Our research aimed to highlight the training needs of senior executives and health care professionals, the barriers of non-monitoring of training programs, as well as the subject areas of interest. Finally, some suggestions were given at staff level for the improvement of training process.

Experts believe that participation opportunities given to the CPE are not satisfactory enough, a fact that indicates that CPE is not a priority for

the public administration of the state. The lack of a systematic training plan by the central administration of the State does not create stable and organized bases for continuing training for each personnel category, and thus several training objects do not meet the market needs and developments. This results in the intensifying of occasional participation of stakeholders, and of the unknown direction-orientation of the training system.

In Greece, one of the serious problems of the CPE process is the lack of both a monitoring (follow-up) and a feedback (feedback) mechanism. Thus, training programs cannot be evaluated for the knowledge and experience gained from these programs, or for their application and contribution to upgrading skills of employees, or for the improvement of patients' outcome, and their contribution to the health system needs. To this is added the lack of a log-book and funds per year, per health care professional; such measures are applied worldwide. The majority of health care professionals consented universally that the existence of a log-book recording the continuing training activities per employee has many benefits.

The portfolio is therefore a valuable source for the administrations of organizations to extract relevant information which prove possible changes, improvements in practice and achievements. Moreover, the portfolio is a demonstration mean of a CPE adequacy, average performance, and therefore his evaluation. The main reason for not participating in training programs is the absence of interconnection between the training process and the employee performance and evaluation. Moreover, as pointed out by almost all respondents, other factors which are considered to be an obstacle for continuing training are the non compulsory form of CPE, the non equal given opportunities, the lack of motivation and guidance of employees and the absence of a continuing training culture (Gallagher,2006; Edmuds,2007; Macy,2008; Bamrah et.al.,2011; Ross et.al.,2013; Politi & Souliotis,2013). According to the experts' opinions the aforementioned factors are absent because the experts that determine the continuing training needs of health professionals, are influenced by political, organizational and other public directions, resulting in different perceptions and priorities in this regard.

For an efficient and effective health system, health experts have concluded that the CPE of human resources should be holistic and not one-dimensional, as well as it should cover four sectors, i.e., the sector associated with the population (health promotion, prevention, public health), the sector concerning the organization where they work (administration, finance, accounting, technology), the sector related to the patient (diagnosis, treatment and rehabilitation), and the sector related to ideas and knowledge (research, evaluation, health care quality, etc.) (Peck et.al.,2000; Gallagher,2006; Schostak et al.,2010;Sottas et.al.,2013).

Experts in all four categories of employees have concluded that there should be a connection between the training programs and the employee's performance and evaluation in order to overcome the obstacles of non participation in continuing professional education; this connection will help employees in their professional development. The study concluded that all four categories of employees require the support of their workplace and their employers; this support will enable them to integrate continuing professional training in their practice. Moreover, either moral or financial motivations and guidance of employees should be given; in this way the employees will seek by themselves to continue training, and hence achieve the best results for both themselves and health care quality. Finally, the training programs should be compulsory, as is the case in several countries worldwide, and equal opportunities should be given by repeated, if necessary, programs so that all interested stakeholders be involved.

Strengths and limitations of the study

The main strength of this study is that it is the first qualitative study in Greece exploring the views of experts regarding the investigation and assessment of professional education needs of four categories Health Sector Personnel. Qualitative studies are important to clarify complex issues by assessing experts perspectives and eliciting provider preferences, and should therefore be a priority in the research agenda for topics relevant to continuing professional education. This study involved 103 experts which their professional position was covering the whole of Greece. Their previous professional experience (more than 15 years' experience in the profession) and their research experience suggest

that our panel is sufficiently broad, experienced and capable of making accurate judgments.

Moreover, the present study did not evaluate whether the thematic unit of training needs recommended by the experts is connected with the real demands of health labor market. However, this limitation cannot be considered troublesome, since one of the selection criteria of experts was their professional experience, which means that they are able to know the labor market needs, and the new conditions to which a new health practitioner must adapt.

Conclusion

The main objective is to elaborate basic methodological guidelines for the development of a system for the identification of educational needs by human resources category, so that they meet the tailor-made training and the needs of the labor market and health services. An important key to this, apart from recognition, is the prioritization of training modules by category of personell. Secondly, on the basis of this system, develop a mechanism to provide training and evaluation of its outcomes, ensuring in the best way that any investment made in the field of education will yield what is really needed by each institution. Thus, this study can help in the implementation of future health reform.

With the current economic crisis and the austerity imperatives of the Memorandum in Greece, the National Health System (NHS) is constantly being in the phase of both organizational and functional reorganization. Hence the present study can contribute and help to that end. Upgrading and empowering all categories of staff of the Health Sector is a prerequisite for the success of a change and, more generally, of a reform.

A key component for any effort of applying a health policy and implementing reforms is the development of culture regarding the importance of continuing training and the design of the workforce with the necessary qualifications.

Acknowledgement

The authors would like to thank all scientific experts who participated in the Delphi panel. Their contribution was crucial for the completion of this research study. The authors have no conflict of interest to declare.

References

- Aiken L, Clarke S, Silber J, Sloane D, & Sochalski J. (2002). Hospital Nurse Staffing and Patient Mortality, Nurse Burnout, and Job Dissatisfaction. *JAMA*, 288(16):987-1993.
- Association of American Medical Colleges & American Association of Colleges of Nursing (2010). Lifelong Learning in Medicine and Nursing. America: Josiah Macy Foundation. Available from: http://media01.commpartners.com/acme_eo2_docs/Lifelong_Learning_in_Medicine_and_Nursing.pdf
- Bamrah JS, Gray DA, Purandare N, & Merve, S. (2011). Continuing professional development for physiatrists: surveying current practice in the UK. *The Physiatrist*, 35(4):151-154.
- Brown CA, Belfield CR, & Field S.J. (2002). Cost effectiveness of continuing professional development in health care: a critical review of the evidence. *BMJ*, 16(324): 652-655.
- Cho SH, Ketefian S, Barkauskas VH, & Smith DG. (2003). The effects of nurse staffing on adverse events, morbidity, mortality, and medical costs. *Nursing Research*, 52 (2):71-79.
- Donohoe HM., & Needham RD. (2009). Moving best practice forward: Delphi Characteristics, Advantages, Potential Problems and Solutions. *International Journal of Tourism Research*, 11 (5): 415-437.
- Edmunds MW. (2007). New Changes on the Continuing Education Frontier. *The Journal for Nurse Practitioners* 3(2):71.
- EQUIP and EURACT. (2002). Continuing Professional Development in primary health care: Quality development integrated with continuing medical education. pp.1-23. Available from: http://www.qmg.de/qmg/CME_QD.pdf
- European Commission. (2014). DRAFT JOINT EMPLOYMENT REPORT FROM THE COMMISSION AND THE COUNCIL accompanying the Communication from the Commission on the Annual Growth Survey 2015. COM (2014) 906 final, Brussels. Available from: http://ec.europa.eu/europe2020/pdf/2015/jer2015_en.pdf
- Gallagher L. (2006). Continuing education in nursing: a concept analysis. *Nurse Education Today*, 27(5):466-473.
- Guest D, Conway N, & Dewe P. (2004). Using sequential tree analysis to search for “bundles” of HR practices. *Human Resource Management Journal*, 14(1):79-96.
- Habibi A, Sarafrazi A, & Izadyar S. (2014). Delphi Technique Theoretical Framework in Qualitative Research. *The International Journal Of Engineering And Science (IJES)*, 3(4): 8-13.
- Hasson F, Keeney S, & McKenna H. (2000). Research guidelines for the Delphi survey technique. *Journal of Advanced Nursing*, 32(4):1008-1015.
- Health workers for all (HW4All). (2014). Publication produced in the framework of the Project “Health Workers for all and all for Health Workers” DCI-NSAED/2011/106. Available from: https://www.wemos.nl/wpcontent/uploads/2016/06/HW4All_synthesis_report_2014_03.pdf
- Holey E, Feeley JL, Dixon J, & Whittaker V. (2007). An exploration of the use of simple statistics to measure consensus and stability in Delphi studies. *BMC Medical Research Methodology*, 7(52):1-10.
- Hsu C-C, & Sandford BA. (2007). The Delphi Technique: Making Sense of Consensus. *Practical Assessment Research and Evaluation*, 12(10):1-8.
- Irvine YK, Jessiman W, & Felce A. (2012). Prioritising research and dissemination: a Delphi study of NHS Highland midwives. *Library and Information Research*, 36 (113): 32-47.
- Kamariannaki D, Alikari V, Sachlas A, Stathoulis J, Fradelos EC, & Zyga S. (2017). Motivations for the participation of nurses in continuing nursing education programs. *Archives of Hellenic Medicine*, 34(2):229-235.
- Kane RL, Shamliyan T, Mueller C, Duval S, & Wilt T.J. (2007). Nurse staffing and quality of patient care. *Evidence Report Technology Assessment*, (151):1-115.
- Kyriopoulos I. & Soulis S. (1998). Defining the professional development needs within the health sector based on specialisation and geographical area, Ministry of Health and Social Services, Athens.
- Linstone HA, & Turoff M. (2002). The Delphi method: Techniques and applications. (Linstone, & Turoff Eds.) , USA: Pub. Murray Turoff and Harold A. Linstone.
- Macy J. (2008). Continuing Education in the Health Professions: Improving Health care Through Lifelong Learning. Edited by: Hager M., Russell S. and Fletcher S., New York: the Josiah Macy, Jr. Foundation.
- Makrydimitris A, & Yfantopoulos I. (2004). "Research for the Improvement of Human Resource Performance and the Panayiotis and Aglaia Kiriakou Pediatric Hospital", University of Athens, Department of Political Science and Public Administration, Laboratory of Administrative Sciences, Athens.
- Ministry of Health - Community Support Framework. (2004). Operational Program: "Health and Welfare 2000-2006", Measure 1.4 "Development of Public Health", Study: "Investigation, Recording and Evaluation of the Vocational Training Requirements of the Health and Welfare Sector". Athens, Greece.
- Ministry of Health. (2012). Health Map in Greece, Operational Program "Human Resources Development 2007 - 2013". Health Map, (6), pp1-24, Athens, Greece.
- Needleman J, Buerhaus P, Mattke S, Stewart M, &

- Zelevinsky K. (2002). Nurse-staffing levels and the quality of care in hospitals. *The New England Journal of Medicine*, 346(22):1715-1722.
- Panagiotopoulou K, & Brokalaki H. (2012). Continuing professional education and the motivational orientation of nurses. *Hellenic Journal of Nursing*, 51:386-395.
- Pena Flores Y, & Alonso Castilo M. (2006). Factors influencing nursing staff members' participation in continuing education. *Rev Latino-am Enfermagem*, 14(3):309-315.
- Peck C, McCall M, McLaren B, & Rotem T. (2000). Continuing medical education and continuing professional development: international comparisons. *BMJ*, 320:432-435.
- Pierrakos G, Sarris M, Amitsis G, Kyriopoulos J, & Soulis S. (2006). Training needs and vocational training of human resource in health. *Nosileftiki, Hellenic Journal of Nursing*, 45 (1):543-551.
- Politi ED, & Souliotis K. (2013). Understanding the weaknesses and the threats of continuous medical education in the 21st century. *Problems of education in the 21st century*, 56, 105-114. Available from: http://www.scientiasocialis.lt/pec/files/pdf/vol56/105-114.Politi_Vol.56.pdf
- Ross K, Barr J, & Stevens J. (2013). Mandatory continuing professional development requirements: what does this mean for Australian nurses. *BMC Nursing*, 12(9):1-17.
- Skroubelos A, Daglas A, Skoutelis D, & Kyriopoulos I. (2012). The nursing staff at Greece: Present situation and current challenges. *National School of Public Health, Athens, Greece*.
- Schostak J, Davis M, Hanson J, Schostak J, Brown T, Driscoll P, Starke I, & Jenkins N. (2010). *The Effectiveness of Continuing Professional Development. Final Report*, pp. 1-128. London: Academy of Medical Royal Colleges, General Medical Council.
- Sottas B, Höppner H, Kickbusch I, Pelikan J, & Probst J. (2013). *Educating Health Professionals: an Intersectoral Policy Approach*. Careum working paper 7:1-44, Zurich. Available from: [http://www.careum.ch/documents/20181/75972/Careum+Working+Paper+7+\(english\)/632ef553-fff8-43ce-aa45-3bd77e06296a?version=1.0](http://www.careum.ch/documents/20181/75972/Careum+Working+Paper+7+(english)/632ef553-fff8-43ce-aa45-3bd77e06296a?version=1.0)
- Lytras AN, & Souliotis KN. (2004). *The Excluded within Globalization. Social Policy Issues* (foreword: E. Mosialos), Athens, Papazisis, pages: 149 (in Greek).
- Stanton MW, & Rutherford MK. (2004). *Hospital nurse staffing and quality of care. Research in Action*. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ), (14): 04-0029, 1-12.
- Yfantis A, Tiniakou I, & Yfanti E. (2010). Nurses' attitudes regarding Continuing Professional Development in a district hospital of Greece. *Health Science Journal*, 4 (3):193-200.