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Interprofessional education and practice in the effective management of healthcare organizations

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Interprofessional relationships and education provide a great opportunity for more effective management of healthcare organizations. Traditional education provided by health science programs worldwide appear not to have been sufficiently effective in promoting interprofessional collaboration, but in the last decade, interesting discussions have taken place concerning developing innovative interprofessional educational systems. Such systems encompass healthcare employees from a variety of different professional backgrounds. Interprofessional education (IPE) and interprofessional collaborative practice (IPCP) can develop the attitudes, knowledge, skills and behaviors of healthcare professionals towards effective collaboration. Healthcare provision involves a highly complex system of interrelationships between many stakeholders that can be managed more effectively by integrating IPE and IPCP in health care, and training healthcare professionals appropriately. In addition, in order to achieve positive patient outcomes, interprofessional teams should be relationship-centered. Healthcare management should focus on the quality of the experience of the employees in the workplace and the quality of life (QoL) experience of the patients during their hospitalization or participation in healthcare programs. As many variables need to be considered that influence the quality of interprofessional training, a theoretical framework is necessary for exploration of the most important factors involved in interprofessional education.

Διεπιστημονική εκπαίδευση και πρακτική για την αποτελεσματική διοίκηση των οργανισμών υγειονομικής περίθαλψης

Περίληψη στο τέλος του άρθρου

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1. INTRODUCTION

Well-trained, productive employees constitute a key success factor for any company or organization. Training and education for healthcare organizations constitute a special case, because of the particularities of the administrative structure of healthcare services, deriving from their need for healthcare professionals from a variety of different backgrounds, and with differing skills, responsibilities and roles. In addition, healthcare organizations are dealing with health, probably the most crucial aspect of human life. In today's highly competitive world, a healthcare system must be able to provide patients with high-quality health care at the minimum possible cost.

The management of healthcare organizations, therefore, needs to explore innovative ways to increase their productivity and effectiveness, including the interprofessional education (IPE) and training of healthcare personnel, which will benefit both employees and patients.[1] This paper examines key issues involved in healthcare management and the significance of IPE and training in healthcare organizations.

A theoretical framework is developed, which serves as a study tool for exploring interprofessional-related themes.

2. THE HEALTHCARE SYSTEM AND EXPENDITURE ISSUES

High-quality healthcare services constitute one of the most important goals for any country around the world. Recent statistics from Europe and the United States (US) show that very large expenditures are allocated to the healthcare system, accounting for between 10% and 30% of the total public expenditure.[2] Specifically, in 18 countries in Europe, the cost of the healthcare system is over € 10 billion annually, and in four countries it surpasses the € 100 billion mark.[3] Based on the official data from the National Center for Health Statistics in the US, for the year 2017, the total national health expenditure in that country was $ 3.5 trillion.[4]

Financial expenditure on healthcare is continually rising, as the numbers of patients are growing very fast, and demand is increasing for a higher quality of healthcare services.[5,6] Research shows that higher funding (either total or public) on healthcare does not guarantee better health outcomes. The results of relevant studies confirmed that there is no correlation between healthcare expenditure and mortality, which is one indicator of the performance of the healthcare system, and it is suggested that the focus should be more on the quality of service rather than on volume of services.[2,7]

During the last decade, the healthcare community has been attempting to identify strategies for effective management by identifying criteria for assessing the quality of service of the healthcare system. Efforts have also been exerted to decrease healthcare costs, to manage shortages in the healthcare workforce, and to understand the contributions of the various different healthcare professionals in the provision of high-quality treatment of patients.[5,8] In understanding the role and contribution of the various healthcare professionals, particular attention is given to interprofessional training and practice, which is the theme of this paper. It is of note that there is a shortfall of healthcare professionals worldwide, which obviously has an adverse effect on the quality of healthcare services, and which concerns healthcare organizations worldwide.[9]

According to the World Health Organization (WHO), health is "a state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity".[10] The community of health scientists continually attempts, through research, to manage diverse problems and issues in the health care profession and practice.[8,11] WHO clearly points out that health should "promote cooperation among scientific and professional groups, which contribute to the advancement of health".[10] This is in direct alignment with the notion of IPE and practice. In a planning setting for IPE and practice, certain relevant factors can be identified that promote productivity and lead to the provision of high-quality health care.

3. EDUCATION AND TRAINING

Nowadays, education does not merely focus on preparing employees just to "do their job", but it also introduces new interprofessional methods directed towards high quality of service and productivity. Companies and organizations have understood that as organizational methods, tools and needs are continuously evolving, the need for continuous education of their employees is essential, not only for the matters of safety and administration that the Occupational Safety and Health Administration (OSHA) requires, but also for their own personal development. This situation is related to lifelong learning, and includes lifelong opportunities for education, and to the concept of the "learning organization". Senge[12] defines the learning organization as "a group of people working together collectively to enhance their capacities to create results they really care about". A plethora of methods and tools are available that can be used to educate employees. These include intracompany and intercompany audiovisual and conventional distance learning techniques, subsidized undergraduate and postgraduate programs in state or private universities, on-the-job training techniques, non-systematical-atypical techniques, apprenticeship training, throughout behavior patterns methods, vestibule training, interactive training, computer-based training, simulation training techniques, online learning techniques, learning through portable devices, and special-purpose training techniques.[13]

Special purpose training appears to be necessary for developing specific skills that prepare employees to use new methods and tools. In view of the advancement of technology, all employees and managers need to update their skills and knowledge. Education is also necessary to prepare professionals to deal with workforce diversity, including nourishing, understanding, and accepting multiculturalism in the workplace, and is crucial for building harmonious relationships in the organizational setting. Through appropriate training, employees can develop the interpersonal skills required to work in teams and contribute to organizational goals. Such training should be designed

to include various aspects of self-awareness, conflict management, and productivity through cooperation.

4. HEALTHCARE ORGANIZATION MANAGEMENT AND PERFORMANCE

Healthcare organization performance is usually measured by the use of profitability, productivity and market share indicators, but these so-called key performance indicators do not take into consideration the quality of care and other essential aspects of success of health care, such as mortality and morbidity. In order to be more human-oriented, healthcare organizations should incorporate knowledge from organizational sociology, organizational behavior, and human resource management. Such knowledge will assist healthcare managers to increase employee motivation and engagement, which in turn will improve the level of patient treatment and lead to a generally higher quality of healthcare services. Management practice should focus not only on profitability and productivity, but should also consider the quality of the experience of their employees at work and the quality of life (QoL) experience of patients during their hospitalization or participation in healthcare programs. The QoL experience of healthcare employees directly influences the QoL experience of patients, and *vice versa*. Human resource management (HRM) of healthcare organizations is responsible for providing a good organizational climate for all employees. Ideally, every healthcare organization should be a "great place to work". Such a situation can be achieved by sophisticated, high quality healthcare governance and HRM practices, focusing on updated methods for the clinical directorates, divisions and trust boards, and for the professionals working in collaboration. It is important to note that a poor relationship between the training and the experience of healthcare professionals can reduce the quality of the healthcare services provided.[15] Identification of common values among the health professions shows great potential for improvement through subsequent interprofessional training in collaboration, teamwork and relationships between the various health professionals in clinical practice.[16] In addition, training in communication skills, including conflict management skills, problem-solving skills and leadership skills, can influence the quality of patients care for the better. University healthcare organizations and hospitals have been documented to provide a higher quality of healthcare service, which might be due to the fact that they are both health care and educational institutions.[15,17] Similarly, high-quality healthcare outcomes are documented to be associated with appropriate organizational facilities, comprising optimal nurse staffing, professional expertise, organizational size, type of ownership, urban/rural location, teaching hospital status, and high technology equipment.[15]

Numerous variables contribute to a high quality healthcare model organization, which can be categorized as dependent, independent, intermediate, and control variables. Independent variables include: (a) Clinical indicators, such as deaths in the hospital during a specific period, (b) adverse events, such as medication errors, (c) complications, such as hospital-acquired infections, (d) constructed indicators, such as failure to rescue, (e) administrative targets, such as the state of waiting lists or financial viability, and (f) the experiences of patients and caregivers, such as complaints or response to surveys. The intermediate variables include staff outcomes, such as job satisfaction, and organizational outcomes, such as rate of sickness and absenteeism. The control variables consist of (a) hospital characteristics, such as size, specialization and teaching status, (b) patient characteristics, such as the severity of illness or multiple diagnoses, (c) characteristics of work, such as predictability of admission patterns, (d) socioeconomic factors, such as social class characteristics of the local population, and (e) economic variables related to the financial state of the organization. The category of dependent variables includes organizational aspects, such as centralization/decentralization, organizational processes, such as HRM practices, coordination of healthcare, interprofessional relationships and education, and environmental variables, such as the quality of relationships with other organizations and the social psychology of work.[15]

5. INTERPROFESSIONAL EDUCATION AND PRACTICE

A great opportunity to significantly improve the performance of healthcare organizations is provided by IPE and practice, which explains the increasing interest noted in the literature on interprofessional education in the last decade. Today's healthcare educational systems are seriously examining the prospect of combining knowledge from various different healthcare professional backgrounds in IPE, and as defined by WHO: *"IPE occurs when two or more professions learn from each other to improve health outcomes"*.[18] Further, WHO suggests that in order for the system to provide high quality and low-cost health care: *"Interprofessional collaborative practice (IPCP) occurs when several health employees from different professional backgrounds work with patients, their families, caregivers and communities to provide comprehensive service and deliver the highest practicable quality of care"*.[18] It appears that IPE and IPCP can be used as educational tools to enhance the

attitudes, knowledge, skills and behaviors of healthcare professionals.[8]

Historically, IPE programs have been introduced since the 1940s in universities, first in the US, followed by Canada, the United Kingdom (UK) and Australia.[19] More recently, IPE programs have appeared at undergraduate and graduate levels in other developed and developing countries. Many countries have recently added IPCP to their undergraduate and postgraduate educational programs for healthcare professionals. This has been observed primarily for dentists, professionals working with children, gerontologists and those in palliative care and social workers.[8] IPE and IPCP can be challenging, as there are so many healthcare professionals who can benefit from professional collaboration. Specifically, these include physicians, dentists, pharmacists, pharmacy technicians, physicians' assistants, nurses, advanced practice registered nurses, surgeons, surgeons' assistants, athletic trainers, surgical technologists, midwives, dietitians, therapists, psychologists, chiropractors, clinical officers, social workers, phlebotomists, occupational therapists, optometrists, physical therapists, radiographers, radiotherapists, respiratory therapists, audiologists, speech pathologists, operating department practitioners, emergency medical technicians, paramedics, medical laboratory scientists, medical prosthetic technicians and others. Ideally, these professionals should all work together as a team in private and public healthcare clinics or hospitals and companies that provide health-related services or products, and in academic training research and administration.[20] It is worth mentioning the methodological differences in teaching, curricula and placements between undergraduate and postgraduate levels of IPE programs.[21,22] Most IPE programs are conducted as workshops within the healthcare education curricula.[23] It is of note that in the study of Herath and colleagues,[8] most of the IPE programs identified were concentrated in specific health professions, namely nursing, medicine, pharmacy, and dentistry. It is clear, therefore, that further investigation is necessary to provide appropriate information on the IPE and IPCP programs concerning all the healthcare professions.

Many governments in developing countries aim at improving their strategic health plans and international development initiatives by providing advanced education to their healthcare professionals by incorporating IPE and IPCP in their educational programs. It is recommended that health consumer opinions should be included in the design, delivery and assessment of health services and in creating appropriate conditions for supporting higher quality healthcare education.[24] The absence of consumer input can result in poorly designed programs that are inadequate to their needs, and which may be costly.[24] Based on the study of Herath and colleagues,[8] it is apparent that, even though IPE programs differ substantially between countries, the various academic institutions are benefiting from their introduction. Most IPE and IPCP activities lead to positive changes in perceptions and attitudes among students, but still under investigation are questions regarding the endurance of these positive changes, and also the most effective methods of IPE.[21,25–27] Research shows that the assessment tools of the effectiveness of IPE programs need further development, in order to enhance healthcare educational programs and policies worldwide.[8,21,28,29] In an attempt to meet this need, several measurement scales have been created and tested for their validity and reliability.[29–34] To fully exploit the impact of IPE on the quality and cost of healthcare systems, it should be included in the training of licensed or certified professionals in nursing, physical therapy, occupational therapy, speech and language pathology, social work, and, indeed, all the healthcare professions, in addition to medicine.[13,35] It is important to recognize that health care is a complex system of interrelationships, involving not only the biopsychosocial and educational background of the "multi-healthcare professionals" or the biopsychosocial background of the "multi-patient", but also the varying legal, cultural and environmental characteristics of each country. This complex system of interrelationships needs IPE, as it can provide appropriate training for healthcare professionals, equipping them to treat the "multi-patient" health problems of today's world. Interprofessional teams can also be relationship-centered and achieve good patient outcomes.[35]

An interesting systematic review of Herath and collegues[8] showed that, even though IPE and IPCP programs produce positive outcomes in health care, some remarkable difficulties are encountered in their implementation, which need to be further studied in order for them to be addressed in relevant educational and healthcare policies. Fried[36] categorized the forces that impact IPE and IPCP programs into sociological, economic/financial, political/legislative, demographic, and health conditions, as shown in table 1.[11,36]

Governments, institutions, and hospitals worldwide need to implement an assessment plan to provide appropriate evidence about the introduction of IPE, the revision of curricula and formulation of new strategies for implementing redesigned educational programs for the healthcare professions. In addition, collaboration with existing organizations or educational institutions that have

Table 1. Forces affecting interprofessional health care education and practice.*

Force	Proposed interventions/solutions
Sociological	Prevention delivered by multiple providers
	Early detection by multiple providers
	Communication among health care, legal, and social welfare providers
Economic/financial	Increased interdependence of responsibilities
	Delegation of care delivery to others
	Fewer turf battles and more sharing
Political/legislative	Use of mid-level providers
	Additional settings available to provide care
	Dissemination of culturally competent information regarding available care
Demographic	Team-based care for the elderly
	Recognition/attention to oral-systemic link
Health conditions	Prevention delivered by multiple providers
	Early detection by multiple providers
	Utilization of collaborative teams

*After Fried, 2014[36]

similar goals and needs will allow units to share the benefits of IPE programs and significantly enhance efficiency. Educational efforts are required in alignment with practice requirements as health care evolves rapidly. IPE and IPCP programs should be characterized by updated infrastructure, training initiatives, faculty leadership and capacity development to correspond to current healthcare needs. Successful implementation of IPE will require accreditation requirements and leadership educational settings at all levels, both academic and practical.

Clearly, the complexity of the healthcare system increases with the introduction of IPE and IPCP, necessitating further research in understanding the many variables involved and their relationships. The next section presents a theoretical framework of IPE and IPCP to be used for this purpose.

6. PROPOSED THEORETICAL FRAMEWORK FOR INTERPROFESSIONAL EDUCATION AND PRACTICE

Based on the above review on IPE and IPCP, a conceptual framework is developed here for analyzing the variables involved, with a view to increasing the quality of healthcare services and improving the experience of both the healthcare professionals and their patients. The framework depicted in figure 1 presents the independent, mediating, and moderating variables potentially associated with IPE and IPCP. As shown in figure 1, IPE and IPCP influence the

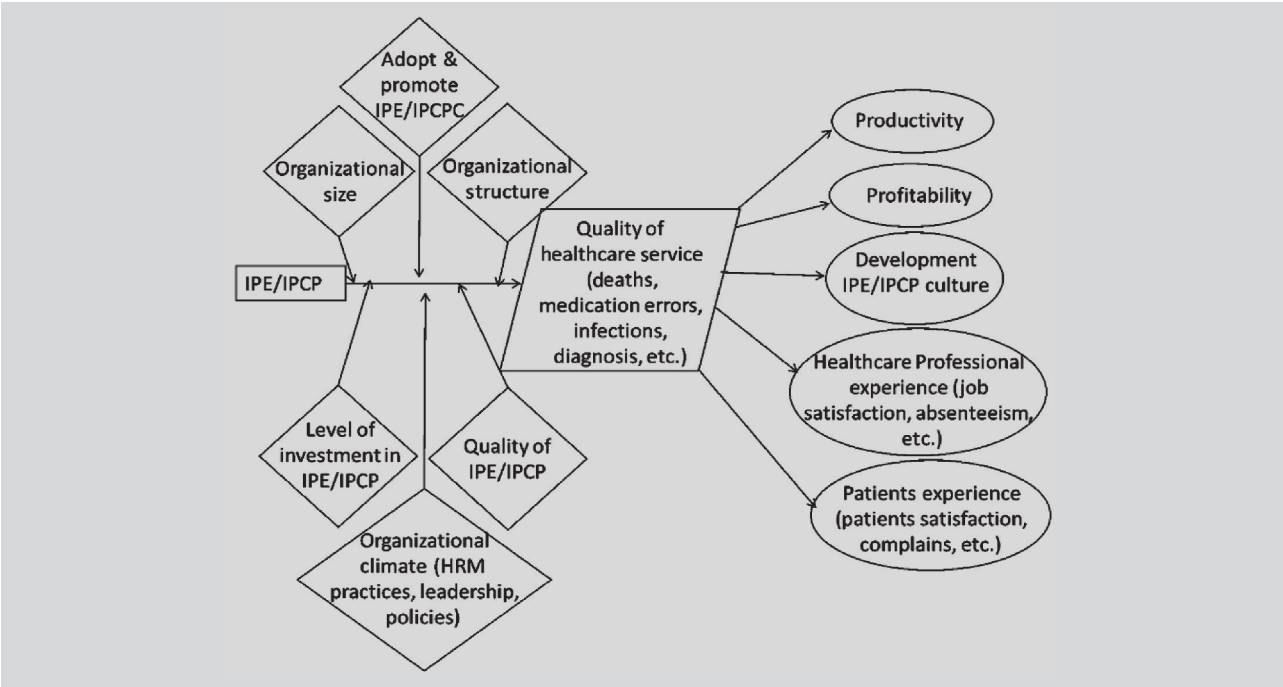

Figure 1. A theoretical framework for interprofessional education (IPE) and collaborative practice (IPE/IPCP) in health care. IPCP: Interprofessional collaborative practice; HRM: Human resource management.

quality of healthcare services, but other specific variables moderate this relationship. These moderating variables can be arranged in two categories, related to the healthcare organization and to various aspects of IPE and IPCP, respectively. The organizational factors proposed in this theoretical framework are organizational size, structure and climate. Organizational structure can vary from being rather mechanistic to being somewhat organic. The organizational climate is comprised of HRM practices, supportive leadership, policies, and in general, the presence of a supportive environment for IPE and IPCP. The second category of moderating variables includes the quality of the IPE and IPCP programs, the level of investment by the healthcare organization in IPE and IPCP, and the willingness of the healthcare staff to adopt, adapt, and promote IPE and IPCP in their everyday work routine. In particular, the adoption and promotion of IPE and IPCP depends on the relationship between IPE and IPCP training received, and affects the quality of the healthcare service provided. It is important to note that the quality of healthcare service is a mediating variable and can be assessed by clinical indicators, such as diagnosis effectiveness, patient recovery, number of deaths, medication errors, hospital-acquired infections, waiting lists, and others.

Further, as shown in figure 1, IPE and IPCP indirectly influence variables that are important for healthcare organizational success, mediated by the provision of healthcare services. These key dependent variables include productivity, profitability, the experience of the healthcare professionals, and the experience of the patients. The experience of healthcare professionals is a product of job satisfaction, job engagement, job involvement and absenteeism. The experience of the patients is a product of satisfaction with treatment, interaction with the healthcare professional staff, and the number of complaints. Further, the success of IPE/IPCP depends on the mediating variable of the quality of the healthcare services.

The following proposition is derived from the theoretical framework described above: (a) IPE and IPCP are positively related to the healthcare service, which in turn affects the productivity, profitability and development of the IPE and IPCP culture, and the experience of the healthcare professionals and the patients. (b) IPE and IPCP show a positive relationship with healthcare service, moderated by the organizational size, structure, level of investment, quality of IPE and IPCP, organizational climate, and adoption and promotion of IPE/IPCP. The above propositions need to be investigated in further studies.

7. CONCLUSIONS AND FUTURE STUDY

In conclusion, IPE and IPCP in health care provide a significant challenge/opportunity to enhance the effectiveness of healthcare management systems and to provide patients with low-cost, high quality health care. Healthcare organizations need to focus, not only on assessing profitability and productivity, but also on the quality of the experience of employees in the workplace and the QoL of patients undergoing hospitalization and using healthcare programs. For this reason, effective healthcare management needs to take into consideration specific variables that influence the quality of health care, including independent variables such as IPE and IPCP. In general, IPE/IPCP occur when two or more professionals learn from each other about how to improve health outcomes, and about the collaboration of healthcare professionals with patients, their families, caregivers and communities, resulting in the provision of high quality services and the delivery of highest practicable quality of care. A good understanding of the variables involved will ensure that IPE/IPCP will have positive results for healthcare systems and provide higher quality healthcare outcomes.

Further research needs to be carried out to investigate the factors that contribute to implementing IPE and IPCP in the healthcare setting. This paper presents a theoretical framework that proposes the main factors influencing the quality of healthcare service and the experience of the healthcare professionals and their patients through the institutionalization of IPE and IPCP. We need to further examine the extent to which IPE/IPCP are related to healthcare services, and the ways in which they affect productivity, profitability, the development of IPE and IPCP culture, and the experiences of healthcare professionals and patients. Finally, we suggest investigating the degree to which IPE and IPCP are related to healthcare services, and how this is moderated by organizational size and structure, level of investment, quality of IPE and IPCP, organizational climate and adoption and promotion of IPE and IPCP.

ΠΕΡΙΛΗΨΗ

Διεπιστημονική εκπαίδευση και πρακτική για την αποτελεσματική διοίκηση των οργανισμών υγειονομικής περίθαλψης

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Οι διεπιστημονικές σχέσεις και η εκπαίδευση συνιστούν μια εξαιρετική ευκαιρία για την αποτελεσματική διοίκηση των οργανισμών υγειονομικής περίθαλψης. Η παραδοσιακή εκπαίδευση που παρέχεται από τα προγράμματα επιστημών υγείας παγκοσμίως φαίνεται ότι δεν είναι αρκετά αποτελεσματική. Ως αποτέλεσμα, την τελευταία δεκαετία έχουν πραγματοποιηθεί ενδιαφέρουσες συζητήσεις σχετικά με την ανάπτυξη καινοτόμων διεπιστημονικών συστημάτων εκπαίδευσης. Τέτοια συστήματα συνδυάζουν εργαζόμενους στην υγεία με διαφορετικό επαγγελματικό υπόβαθρο. Η διεπιστημονική εκπαίδευση, καθώς και η διεπιστημονική συνεργατική πρακτική μπορούν να συμβάλλουν ως εκπαιδευτικά εργαλεία στην αποτελεσματική ανάπτυξη προσεγγίσεων, γνώσεων, δεξιοτήτων και συμπεριφορών των επαγγελματιών υγείας. Είναι σημαντικό να σημειωθεί ότι η ιατροφαρμακευτική περίθαλψη είναι ένα ιδιαίτερα πολύπλοκο σύστημα σχέσεων μεταξύ πολλών ενδιαφερομένων. Η εν λόγω υψηλή πολυπλοκότητα μπορεί να διαχειριστεί ενσωματώνοντας τη διεπιστημονική εκπαίδευση και πρακτική στην υγειονομική περίθαλψη, με σκοπό οι επαγγελματίες υγείας να εκπαιδευτούν κατάλληλα. Επιπρόσθετα, οι διεπιστημονικές ομάδες θα πρέπει να έχουν ανθρωποκεντρική προσέγγιση έτσι ώστε να επιτύχουν θετικά αποτελέσματα στους ασθενείς. Η διοίκηση της υγειονομικής περίθαλψης θα πρέπει να εστιάσει στις εμπειρίες της ποιότητας ζωής τόσο των εργαζομένων στο εργασιακό περιβάλλον όσο και των ασθενών κατά τη διάρκεια της νοσηλείας ή της συμμετοχής τους σε προγράμματα υγειονομικής περίθαλψης. Πολλοί παράγοντες που επηρεάζουν την ποιότητα της διεπιστημονικής εκπαίδευσης χρειάζεται να ληφθούν υπ' όψιν. Ως αποτέλεσμα, ένα θεωρητικό πλαίσιο καθίσταται αναγκαίο για τη διερεύνηση των πλέον σημαντικών παραγόντων που εμπλέκονται στη διεπιστημονική εκπαίδευση.

Λέξεις ευρετηρίου: Διεπιστημονική εκπαίδευση, Διεπιστημονική συνεργατική πρακτική, Διοίκηση ανθρώπινου δυναμικού, Διοίκηση υγειονομικής περίθαλψης, Εκπαίδευση υγειονομικής περίθαλψης

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