Research, Society and Development, v. 10, n. 12, e14101220045, 2021
(CC BY 4.0) | ISSN 2525-3409 | DOI: http://dx.doi.org/10.33448/rsd-v10i12.20045

The experience of the Professional Qualification Course in Environmental Health Surveillance: a polytechnical education proposal for SUS in Brazil

A experiência do Curso de Qualificação Profissional em Vigilância em Saúde Ambiental: uma proposta de formação politécnica para o SUS no Brasil

La experiencia del Curso de Calificación Profisional en Vigilancia Sanitaria Ambiental: una propuesta de formación politécnica para el SUS en Brasil

Received: 08/30/2021 | Reviewed: 09/05/2021 | Accept: 09/09/2021 | Published: 09/12/2021

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Abstract
One of the main difficulties and challenges for the consolidation and operationalization of the environmental health policy in the Brazil's Unified Public Health System (SUS) is the establishment of both processes and pedagogical strategies for training and professional education at high school and undergraduate levels that are capable to answer the demands and needs of this area. This study aimed to discuss the importance of the formative processes of the Professional Qualification Course in Environmental Health Surveillance and its relevance as a qualification strategy for the SUS. The methodology consisted in the qualitative analysis on the teaching-learning dimensions involved in the establishment of this formative strategy. The observed results indicate to the force of technical qualification in the development of skills and competencies with a purpose to criticality in working with the SUS. It was concluded that this course brought significant learning to the strategy of training workers attentive to the determinants and conditioning factors in health.
Keywords: Health education; Integrality; Health human resource training.

Resumo
Uma das principais dificuldades e desafios para a consolidação e operacionalização da política de saúde ambiental no SUS consiste no estabelecimento tanto de processos como de estratégias pedagógicas de capacitação e formação profissional de nível médio e superior que sejam capazes de responder às demandas e as necessidades desta área. Este trabalho objetivou discutir a importância dos processos formativos do Curso de Qualificação Profissional em Vigilância em Saúde Ambiental e sua relevância como estratégia de qualificação para o Sistema Único de Saúde (SUS). A metodologia consistiu na reflexão qualitativa sobre as dimensões de ensino-aprendizagem envolvidas na constituição desta estratégia formativa. Os resultados percebidos apontam para a potência da qualificação técnica no desenvolvimento de habilidades e competências com vistas à criticidade na atuação junto ao SUS. Concluiu-se que o curso em questão trouxe significativos aprendizados para a estratégia de formação de trabalhadores atentos aos determinantes e condicionantes em saúde.
Palavras-chave: Educação em saúde; Integralidade; Capacitação de recursos humanos em saúde.

Resumen
Una de las principales dificultades y retos para la consolidación y operacionalización de la política de salud ambiental en el SUS es en el establecimiento tanto de procesos como de estrategias pedagógicas de capacitación y formación profesional en los niveles secundário y superior que sean capaces de dar respuesta a las demandas y las necesidades del área. En este estudio tuvo como objetivo discutir la importancia de los procesos de formación del Curso de Calificación Profesional en Vigilancia Sanitaria Ambiental y su relevancia como estrategia de calificación para el SUS. La metodologií consistió en una reflexión cualitativa sobre las dimensiones de enseñanza-aprendizaje

involucradas en la constitución de esta estrategia de formación. Los resultados percibidos apuntan al poder de la calificación técnica en el desarrollo de habilidades y competencias mirando la criticidad del trabajo con el SUS. Se concluyó que el curso en cuestión trajo importantes aprendizajes a la estrategia de formar trabajadores conscientes de los determinantes y condicionantes de la salud.
Palabras clave: Educación en salud; Integralidad; Capacitación de recursos humanos en salud.

1. Introduction

The Joaquim Venâncio Polytechnic School of Health (EPSJV) became in 1989 a Technical-Scientific Unit of the Oswaldo Cruz Foundation (Fiocruz) and its mission is to promote Professional Education in Health with the education process based on an integral education perspective and work as an educational principle.

Anchored in the concepts in the area of work, education and health and having polytechnics as a guiding axis, EPSJV intends to train subjects, citizen-workers with critical, reflexive and participatory awareness, understanding the technical and scientific knowledge present in the processes and organizations of health work, as well as the general knowledge needed to assimilate their work object and thus stimulate the autonomy of professionals so that they can, from a political action, propose interventions and changes in the concrete conditions of work, health and life (EPSJV, 2005).

In this perspective, EPSJV, through its various working groups, among them the Laboratory of Professional Education in Health Surveillance (LAVSA), has been developing curricular proposals and methodologies aimed at high school, post-graduate students and workers of the Brazil's Unified Public Health System (SUS), whether in integrated technical education or subsequent to high school, professional qualification, such as the experience presented in this text.

The Professional Qualification Course in Environmental Health Surveillance (CVSA), coordinated by LAVSA, was established in 2015 from the need for professional qualification of workers from the health departments of the state and municipalities of Rio de Janeiro, Brazil, in order to overcome the fragmentation and disarticulation of educational processes in the field of surveillance which are historically carried out from technical training in service.

Therefore, a partnership was established between EPSJV and the Rio de Janeiro State Health Department (SES-RJ) with the aim to qualify the high school professionals from these departments, in order to promote the development of skills in the field of technical and scientific knowledge, in addition to ethical and political principles related to the sanitary practices of Environmental Health Surveillance, thus seeking to form new subjects - ethical-political agents - committed to the quality of life of the population and to the principles of biodiversity conservation and socio-environmental sustainability.

The training in Environmental Health Surveillance has been offered by LAVSA for many years, the records of the school office of EPSJV point to the Basic Course of Health and Environment Surveillance as a first initiative in this field for SUS professionals in 1996. From this period until its discontinuation in 2006, for the elaboration of the Course Plan of the education of Health Surveillance Technician (CTVISAU) in the modality integrated to high school, the course underwent restructuring sums in terms of its name, curriculum, course hours and public.

In 2014, the CVSA underwent a process of reformulation of the curriculum in order to adapt it to the Guidelines and Guides for Education Health Surveillance Technicians of the Ministry of Health and, due to the fulfillment of a demand of the Coordination of Surveillance in Environmental Health and Workers' Health (CVAST) of the SES-RJ, which pointed to a lack of qualification of workers working in the surveillance and control of biological risks in the state. Thus, from 2015, CVSA was again offered by EPSJV with emphasis on biological risk factors.

In this context, this study aims to discuss the importance of the training processes of the Professional Qualification Course in Environmental Health Surveillance and its relevance as a qualification strategy for the Brazil's Unified Health System (SUS).

2. Methodology

This research has a qualitative character which presents as its central concern the detail of understanding an event, a population group, an organization, among others. The qualitative approach opposes the presumption that supports a single research model for all sciences (Goldenberg, 2011).

The interpretive process, that is, the first moment of analysis of the information collected, took place in an organized manner and, for this to happen, it was covered in three moments. The first moment was the preparation and compilation of data. In the second moment, there was an analysis of the data in a contextualized way in order to theoretically reconstruct the reality. In the third moment, the investigative process was based on dialogue with the authors who work with the topic in question. To achieve this purpose, we performed a synthesis through the articulation between empirical data, the authors who work on the theme and the analysis carried out on the situation. This articulation and subsequent reinterpretation allowed the research to be brought closer to the broader reality.

3. Results and Discussion

3.1 Environmental Health Surveillance

It is in the context of Health Surveillance and the relationship between the environment and the population health quality that a field of knowledge referred to as "Environmental Health" or "Health and Environment" is defined. According to the World Health Organization (WHO), this relationship incorporates all the elements and factors that potentially influence health, ranging from exposure to specific factors such as chemicals, biological elements or situations that interfere in the individual's mental state to those related to negative aspects of the social and economic development of countries.

The field of environmental health is identified as one that comprises the area of public health related to scientific knowledge, the formulation of public policies and the corresponding interventions (actions) related to the interaction between human health and the factors of the natural and anthropic environment that determine, condition, and influence it, aiming to improve the quality of life of the human being from the point of view of sustainability (Siqueira & Carvalho, 2003).

In this perspective, the Environmental Health Surveillance (VSA) inserted itself in comprehensive health care and acts in the Health and Environment interface with its view of the territory, being based on legal instruments of the Brazil's Unified Health System (SUS).

According to Netto and Carneiro (2002), the field of action of Environmental Health Surveillance consolidates the socio-ecological and systemic view on the health-disease process and, therefore, articulates in an integrated way with different actors (public authority, private sector, and communities) at all levels of government. Its spaces of practice are primarily the municipalities, but also the Health, Environment Councils, local Agenda 21 Forums and the Hydrographic Basin Management Committees. Its instruments and methods of action are elaborated from environmental epidemiology, risk assessment and management, health and environmental indicators, and information systems.

The fundamental tasks of Environmental Health Surveillance refer to the processes of production, integration, processing and interpretation of information, aiming at the knowledge of existing health problems related to environmental factors, their prioritization for decision-making and execution of actions related to promotion, prevention and control activities recommended and performed by this health subsystem and its permanent evaluation (Tambelini & Camara, 2002).

In the historical construction of the VSA there are few milestones prior to the 1970s, facts such as the Meuse valley fog in Belgium in 1938, the Donora smog in the USA in 1948 and the great London fog in 1952 drew the attention of the government to the importance of air pollution on health and gave rise, in 1956, to the Air Control Pollution Act of London in

England. In the USA, still in the 1950s, the first federal legislation involving air pollution was the Air Pollution Control Act and in 1970 was the Clean Air Act Amendments (Schwartz, 1994; Díez et al, 1999; Gomes, 2002).

Environmental issues only gained prominence on the world scenario in 1972, in Sweden, with the United Nations Conference on the Human Environment, also known as the Stockholm Conference, in which discussions resulted in recommendations to peoples to seek a better relationship between man and the environment. Later, in 1974, the Ministry of National Health and Welfare Canada published a report that pointed to the environment as one of the explanatory groups of the health-disease phenomenon (Lalonde Report). Other important facts in this trajectory were the Alma-Ata Declaration for Primary Health Care, in 1978, and the Ottawa Charter, in 1986, which are admirable milestones for environmental health policies in the world. In the Brazilian scenario, still in 1986, at the 8th National Health Conference, the ideas of the Health Reform movement were presented, driving changes in the paradigms of health practices with the expansion of the health concept, considering it resulting from the living conditions and the environment of peoples (Rohlfs et al, 2011).

In 1988, after the promulgation of the last Brazil's Federal Constitution, the foundations for the structuring of the VSA in Brazil were founded through articles 196 to 200 that deal with health and institute the SUS. The National Subsystem of Environmental Health Surveillance was created in 2000 under the management of the National Health Foundation (FUNASA), moving to the Undersecretariat of Health Surveillance (SVS) in 2003, both structures of Brazil's Health Ministry.

In addition to the structuring of an institutionalized surveillance subsystem to address issues related to the environment and its effects on human health, environmental policies and legislation have become increasingly severe and several sectors, in addition to the environment, have incorporated environmental issues in their activity area.

Another way of dealing with these socio-environmental problems that affect human health is the implementation of health policies that are based on the recognition of social determinants of health, specific to each population group, through information territorialization techniques.

One of the main difficulties and challenges for the consolidation and operationalization of environmental health policy in the SUS is the establishment of both processes and pedagogical strategies of education and professional education of high school and undergraduate that are able to respond to the demands and needs of this area.

With the Professional Qualification Course in Environmental Health Surveillance with emphasis on Biological Risks, it is expected that workers can perform specific, complementary and shared technical actions and procedures in order to protect and prevent health events, especially those related to surveillance and control of biological risk factors in the environment.

It is understood that this proposal is of great relevance for the development of knowledge, skills, and attitudes necessary for the training of local agents of Environmental Health Surveillance. Thus, it is expected that it is possible to promote, organize and develop structuring work processes of VSA practices in the state of Rio de Janeiro, since the pedagogical proposal of the Course is centered on teaching based on intervention projects on local problems, projects that start from the diagnosis of the health situation and living conditions of population-territories.

3.2 Meaningful learning

> "If I had to reduce all educational psychology to a single principle, I would say this: The most important isolated factor that influences learning is what the learner already knows. Find out what he knows and base his teachings on it" (Ausubel, Novak & Hanesian, 1980)

The learning process becomes significant as the new content is incorporated into the leaner's knowledge structures and acquires meaning from the relationship with their previous knowledge.

According to the American psychologist David Paul Ausubel, meaningful learning can be defined as the process by which new information interacts in a non-literal and non-arbitrary way with specific subsumers (concepts that will serve to "anchor" the new concept to be learned) existing in the cognitive structure of the individual (unlike the Piagetian concept of scheme, cognitive assimilation and accommodation processes and the Equilibrium Theory). Therefore, in the individual willing to learn, the new information, relatable, is anchored in a substantial and non-arbitrary way in relevant concepts or propositions present in preexisting cognitive structures (Ausubel et al, 1980; Darroz, 2018).

This type of learning is in opposition to mechanical or memory learning which takes place with the literal and non-substantive absorption of new information, usually used in in-service training offered to SUS health agents which are based on a historical dichotomy of the Brazilian education system, which separates theoretical and practical studies, that is, the "saying" of the "doing", strengthening the social division of labor between those who conceive and control the work process and those who perform it, reproduce it without questioning (Elias Rocha Lopes & Machado Gomes, 2020).

Among some of the arguments for the use of memory learning would be that often this health professional does not have subsumers in their cognitive structures that facilitate the connection; for this reason, the use of memorization.

For Ausubel (1980), progressive differentiation would be the most natural way to overcome the "supposed lack" of subsumers. As for example in CVSA which started with content to (re)construction of more general and inclusive knowledge and moved towards less inclusive content. The first themes reconstructed the history of the SUS, Health Surveillance and Environmental Health in general, with the characteristics that define them. Subsequently, the surveillance and control of vectors, hosts and reservoirs and accidents with venomous animals, with their specificities.

Still, behind memory learning, there is the fragmentation of knowledge, the absence of creativity, transformation and the knowledge of the student. For pedagogue Paulo Freire, the mechanical memorization of the content transforms students into "vessels", into containers to be "filled" by educators. In this way, education becomes an act of depositing, in which the learners are the depositories and the educator the depositor. Freire called this vision as a banking conception of education, where one cannot verify overcoming. Banking education is a reflection of an oppressive society, being a dimension of the culture of silence and encouragement of contradiction (Freire, 2014).

3.3 Integral education

The EPSJV starts from the understanding that it is formed by people who train people, thus contributing to the process of integral education of its students, whether in the construction of the citizen being or of the professional being, understanding the not dissociate of both, in a perspective of totality.

For a long time, the education of health professionals has been favoring technical-scientific knowledge, limiting knowledge to "how to do it", a model traditionally used in in-service training. Not ignoring the importance of developing technical skills necessary for the performance of health professionals, however it is believed that educational institutions and their educators should review the priority given to technical qualification, enabling the involvement, among others, of the interpersonal competence of students so that they can learn to learn, to critically reflect on their work processes, to solve problems that may arise in their daily lives, equipping them for the relationships they can establish throughout their trajectories (Esperidião & Munari, 2005; Araujo et al, 2018).

Thinking of the CVSA student as a total being, it is worth emphasizing the importance throughout their formative process, the guarantee of their emotional strengthening, given the constant exposure of these professionals to situations of vulnerability arising from the specificities of their occupational activities and the working conditions in which they are inserted.

In this sense, pedagogical practices should provoke interactions and relationships of students with themselves, with their peers and with their educators, forming a complex network of interrelations that presuppose the existence of connections that help the understanding and meaning of the context to which it is inserted. On the part of the educator, there must be a certain proximity, involvement, with the student to contribute in fact to an integral formation, thus demonstrating, in the dimension of training, the need for personal approximation in work practices.

The importance of this involvement can be apprehended when it is presented to the student and providing opportunities for the development of their interpersonal skills. This importance was corroborated by CVSA students through reports indicating that the performance of the course educators influenced their emotions and, consequently, in their personal and professional maturity.

The International Commission on Education for the 21st century proposes that training should be organized around four fundamental learnings, which will be the pillars of the individual's knowledge throughout his life: learning to know, which indicates awakening, interest, openness to new or reconstructed knowledge from exchanges of experiences; learn to do, because it demonstrates the ability to perform, to run the risk of making mistakes in the attempt to search for the right ones; learning to live together, as the challenge of respectful coexistence with different ideologies and cultures; and learning to be, which comprises perhaps the most important of the pillars of an education for our century, by determining the role of the citizen-worker capable of proposing interventions and transformations of the concrete conditions of work, health and life (Borges, 2016).

Learning needs to be integral, not neglecting any of the potential of each individual. Thus, as a presupposition of this course, the professional educational process should prepare the student to take care of the human being, based on the education experienced in the relations between those who educate and those who are educated, enhancing care relationships, with the need to make room for the sensitive, conviviality and exchange, without neglecting technical and scientific competence (Geib & Saupe, 2000).

3.4 Work as an educational principle

Ciavatta (2008) postulates that relating work with education is to affirm that the formative character of work and education as a humanizing action takes place through the development of all the potentialities of the human being.

Also, we need to understand the various transformation of work meaning throughout History, which from servile, slaver in ancient societies, has become a positive denotation in modern society.

Therefore, the CVSA takes as a conceptual basis the propositions of Saviani (1989) who understand that “every educational system is structured around the issue of work, since work is the basis of human existence, and men are characterized as such insofar as they produce their own existence from their needs. The structuring of society occurs “as a function of the way in which the production process of human existence is organized, that is, the work process” (Saviani, 1989).

Work is understood as an educational principle in the CVSA, as an ontological category of human life, where knowledge, science, technique, technology and culture are mediations produced by work in the relationship between men and the objective conditions of existence.

For Lukács (1978) the production of human existence and the acquisition of consciousness occur through work, through human action on nature. Thus, work is not employment, it does not only translate as a historical form of work in society, it constitutes a central activity of the human being through which it humanizes and creates itself, and expands in knowledge and improves itself.

Furthermore, the conception of work as an educational principle adopted here brings the Gramscian aspect that it proposes in the unitary school, the union between education and work, considering that in training, besides producing, man is also able to govern.

Therefore, the training of health professionals should appropriate this principle and seek in the student's experiential universe and in field observation, the necessary elements for the re-signification of the contents and themes that will conform the curriculum.

3.5 Teaching-learning methodologies

The Course adopted as its methodology the significant learning, through a knowledge approach, articulating theory and practice, teaching-service-community. It was structured with moments of concentration (theoretical-practical contents in the classroom; technical visits) and moments of dispersion (field work), which aimed to build and reconstruct the knowledge needed by this health professional. Thus, enable it in the work process of Environmental Health Surveillance, especially in the Surveillance of Biological Risk Factors, within the local health systems of the SUS.

The face-to-face moments in conjunction with the perspective of dispersion were based on the strategic practice of Health Surveillance, that is, the Information-Decision-Action trinomial that triggers knowledge of health planning and programming to solve problems and meet the health needs identified in the territories. This methodology encompasses the process of territorializing information that enables the recognition and identification of risks, vulnerabilities and potentialities related to the environmental health of the territories (Gondim et al, 2008).

For Teixeira and collaborators, territorialization of the local health system is about the recognition and scanning of the local territory according to the logic of relationships between living conditions, health and access to health actions and services, which implies a collection process and systematization of demographic, socioeconomic, political-cultural, epidemiological and sanitary data (Teixeira et al, 1998).

Structuring and organizing health services according to the needs and problems of the population, from a territorial basis could contribute to a better performance of health professionals, since it allows them to approach the daily lives of the people under their care, and thus develop effective sanitary practices - integral and humanized - that help to improve the living conditions of the population and in the production of health (Gondim, et al 2008).

In this process, the use of diagnostic and analytical tools specific in this area can mobilize knowledge, practices and the various actors to perform technical, complementary and shared actions and procedures, in the sense of health promotion, protection, prevention and control of diseases, injuries and risks related to the surveillance and control of biological risk factors of the identified problems.

To this end, the concepts that structure the practices of Environmental Health Surveillance, its rules and procedures were worked, presenting the main management instruments and legal devices aimed at the management of biological risk factors, necessary for the investigation processes, formulation and solutions to problems, taking the Environmental Health Surveillance as the necessary basis for the establishment of the formative itinerary of Health Surveillance.

3.6 Assessment and certification

The student's assessment was procedural (Pádua, 2019) with the use of different instruments used alone or together. It was used the follow instruments in the teaching/learning process: directed reading; thematic debates; reports and fieldwork; discussion of problem situations; presentations, among others held. In each module, the students performed systematization and presentation of the topics addressed in the classes, in oral and/or written form. The fieldwork developed in groups by the students during the moment of dispersion were, in the same way, systematized and presented in the classroom. The proposed

readings in the classes were discussed with them.

4. Final Considerations

According to Freire (*Apud* Puiggrós, 2019), in the banking view of education knowledge is a donation from those who think they are wise to those who think they know nothing, which is based on one of the instrumental manifestations of the ideology of oppression. Thus, it would reinforce a hierarchical structure of control and power of those who design and control the work process, placing the high school educational professionals of the SUS in Brazil, who work in the territory, as mere task executors, who reproduce them without question.

It is in this context that the proposal of polytechnic educational in the Professional Qualification Course in Environmental Health Surveillance appears in the sense of breaking with this training model. Polytechnics is a formation of workers within the scope of capitalist society that, together with the other elements of the Marxian proposal of education, meaningful learning and integral formation, must find the way between alienated existence and human emancipation in which the new citizen-worker of the SUS is built.

This article reflects on the CVSA regarding the aspects of the pedagogical conceptions and practices adopted by EPSJV in the formation of a category of high school level professionals in the SUS. It is intended to advance the debate through the analysis of the graduate students' conceptions about polytechnic learning, the redefinition of their work processes and possible impacts on the population's living conditions and health production, aiming to improve the teaching model - learning for the SUS.

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