

Areas of competency: professional core and field as axes for health management and training

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Áreas de competencia: núcleo y campo profesional como ejes para la gestión y formación en salud (resumen: p. 20)

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This article addresses the discussion about areas of competency in work management and health training processes. Methodologically, this is an integrative review carried out in specialized databases from 2012 to 2022. A sample of 20 articles showed the presence of two typologies in the representation of health professional profiles: domains and areas of competency. A tendency to use areas of competency was observed in the sample, and the concepts of field and core and Activity Theory were employed in the discussion of the results, considering the explanation of: (i) guiding axes for training and work management; (ii) professional activities according to predominant rationalities and best practices; and (iii) connections between the individual and collective dimensions of competency.

Keywords: Competency. Work. Health. Management. Education.

Introduction

From the second half of the 20th century onwards, changes in management and training processes have been triggered and intensified by the globalization of cultures and economies, in a context of more competitive markets associated with microelectronics technology¹. The integration and flexibilization of production processes, the downsizing of operational structures, and the outsourcing and decentralization of production began to drive changes in labor and professional training processes².

In the field of health, the notion of competency has been employed as an axis to guide professional training processes. To contextualize the relevance of the topic, a search performed in January 2022 in the Medical Literature Analysis and Retrieval System Online (MEDLINE) that considered title, abstract, and subject found 3,531 articles containing the words “competency”, “professional”, and “health”, in the period from January 2017 to December 2021. In the Scientific Electronic Library Online (SciELO), 138 articles containing the same words were published in the same period in the category of all indexes. Although the articles have not been analyzed in detail, this contextualization revealed a diversified set of meanings attributed to the topic of professional competency in the area of health.

Polysemy, tensions, and challenges in the use of the concept of competency

Given the polysemy that involves the present discussion, we sought to explain the approaches to competency in health professions that are present in the scientific literature. Initially, the notion of qualification gained prominence during the first half of the 20th century. Focusing on the contents necessary for job positions, qualification underscores the value of professionals’ diplomas or certificates³.

In the world of labor, the idea of qualification guided the technical division and rationalization of work, aiming to increase operational efficiency¹. Applied to training, it established hierarchies from schooling to professionalization and specialization, structuring programs according to sequential subjects and objectives verifiable through knowledge acquisition⁴.

During the 1970s and 1980s, the notion of competency promoted a shift in the concept of qualification and the inclusion of new professional abilities, although with different models and potential results⁵. The three main models prioritize the importance of (i) knowledge acquisition, focusing on contents/object; (ii) task performance, focusing on functions and results; and (iii) the subject/object relationship, articulating the subject’s abilities with the work context^{1,6,7}.

Thus, the present study aims to investigate the models used in the definition of professional profiles in the area of health, seeking to identify the presence of individual and collective dimensions in the construction of competency⁸⁻¹⁰.

Individual and collective dimensions in the construction of professional profiles

It is important to highlight that, although the model grounded on the subject/object relationship can potentially expand the notion of competency, its application has encompassed both adaptive and transformative perspectives in the professionals' action⁷⁻⁹. In this sense, the presence of individual and collective dimensions reveals a historical production⁹ in the construction of competency.

According to Schwartz¹¹, there are six elements in the process of competency construction: (i) protocols for best practices in work situations; (ii) the singular context of the work situation; (iii) subjects' capacity to connect protocol and singular context; (iv) the values involved in the activity; (v) subject's personal resources; and (vi) the interconnection of the previous ingredients in concrete work situations.

We propose to add, to the elements highlighted by Schwartz⁹, Fleck's¹² propositions on the genesis and constitution of distinct styles of thought that characterize the health professions' forms of action and interaction. According to Fleck, "neither the "subject" nor the "object" have an autonomous reality; any existence lies in a mutual and relative action."¹² (p. 14).

Thus, the construction of competency profiles will be discussed associated with the individual dimension, seeking to identify mentions of systemic relations¹¹⁻¹³. In this kind of approach, work and practice activities are understood as the process and the result of health professionals' interaction with the culture of the society and institutions in which they are inserted, considering the prevalent problems and challenges of professional practice.

Method

In terms of methodology, the process is organized around two axes. In the first one, we sought to identify models in the construction of professional profiles found in searches carried out in specialized databases. The results were utilized to inform the second axis, which investigated the representation of the profiles according to the theoretical and conceptual competency frameworks.

Sample selection

The sample was formed based on a search carried out in the SciELO database and the BVS portal in the period from 2012 to December 2022. The descriptors "profile" and "competency" and "health" were used for full texts in Spanish, English, and Portuguese in a survey performed on February 12, 2023. Overall, 53 articles were obtained from SciELO and 167 articles from BVS, considering the filter "professional competency" as the main subject in the BVS portal. Of the total of 220 articles, 25 repetitions and incomplete texts were removed and 195 articles were analyzed based on abstracts and/or full texts. Inclusion and exclusion criteria were applied in order to answer the investigative question: How is the competency profile outlined for health

professions, and to what extent does it articulate the individual and social dimensions in the construction of competency? (Figure 1).

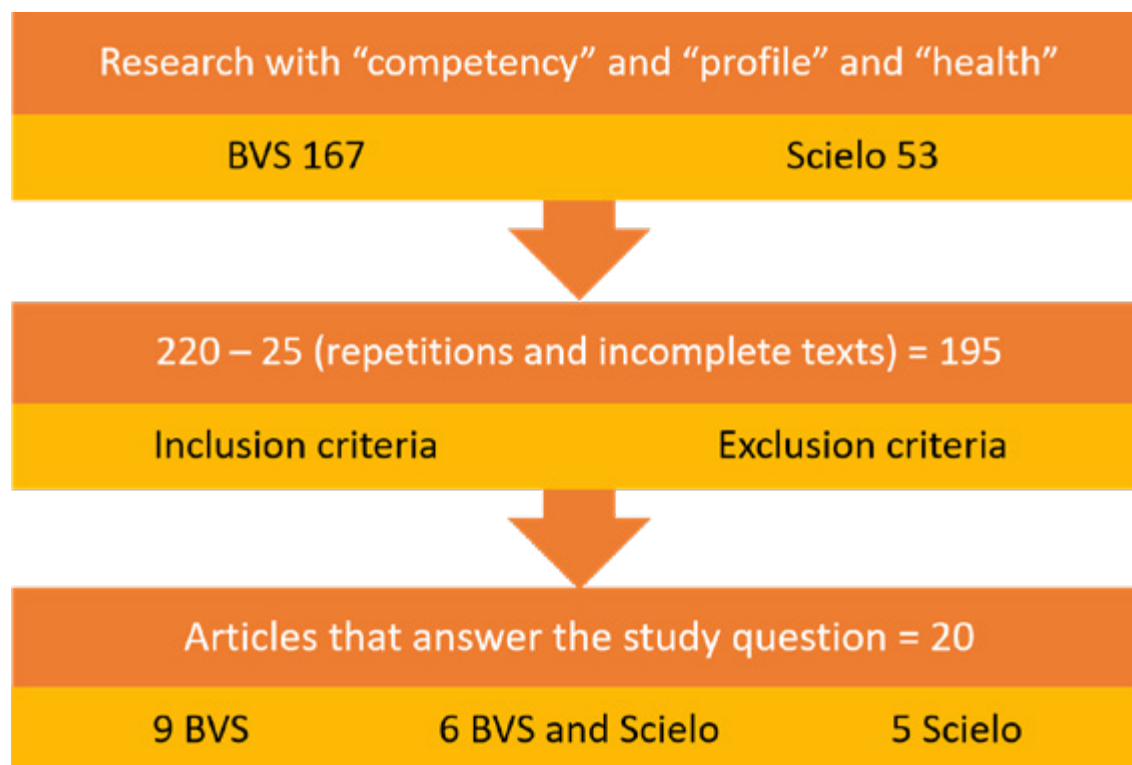


Figure 1. Schematic representation of the sample selection process.

Concerning inclusion criteria, articles that explored and/or outlined the competency profile for a profession or technical function in the health field were selected¹⁴. When the competency profile was mentioned but was not outlined in the body of the article, a second search was carried out in the articles' references, and those in which the profile was accessed in remote databases were included.

Regarding exclusion criteria, the articles that were not in English, Portuguese, or Spanish were removed, as well as those unavailable in remote databases. In addition, we excluded articles that focused on (i) a specific function or specialty of health professionals, such as preceptorship or endocrinology; (ii) a specific ability, like leadership and entrepreneurship; (iii) abilities related to the care of a specific health condition; (iv) differences between junior and senior professionals; (v) professionals with no higher education degrees and no technical training; (vi) analyses of curricula, programs, training sessions, or development initiatives.

Analysis of the sample's profiles

The analysis was grounded on a hermeneutic-dialectic perspective, formulated by Minayo¹⁵ and based on Gadamer's hermeneutics and Habermas' dialectics. Based on these frameworks, the utilized perspective, as explained by Gomes¹⁶, sought to "unveil the consensual meaning of what we proposed to interpret and analyze critically the

disagreements and contradictions of the meanings and their relations to context”. For data collection and treatment, we used an integrative review¹⁷ that followed the stages: selection of the investigative question; establishment of parameters to collect data and of criteria for the inclusion and exclusion of studies; categorization of the studies considering the identified information; analysis of the included studies; interpretation of results; and presentation of reflections and considerations about knowledge extracted from previous studies. To categorize the profiles identified in the sample, three analytical categories were used: (i) professional domains or roles; (ii) areas of competency; and (iii) individual and collective dimensions in the competency approach.

Results and discussion

The sample was categorized according to profile, emphasis, and year of publication (Frame 1).

Frame 1. Sample characterization.

Sample	Authors	Profile	Emphasis	Year
A1	Alves CHL et al.	Nutrition	PHC	2022
A2	Barbosa ACS et al.	Nursing	Generalist	2019
A3	Cassiani SHB et al.	Nursing	PHC	2018
A4	Cenedési MG et al.	Nursing	ICU	2012
A5	Chalita CD et al.	Nursing	Generalist	2017
A6	Chirelli MQ et al.	Nursing	Generalist	2021
A7	Cioffi ACS et al.	Nursing	Generalist	2019
A8	Coughi HF et al.	Medicine	PHC	2022
A9	Fragelli TBO e Shimizu E	Health	NASF	2014
A10	Dias AKG et al.	Nursing	Hospital	2017
A11	Holanda FL et al.	Nursing	Emergency room	2019
A12	Lima VV e Ribeiro ECO	Health	Generalist	2022
A13	Lopes OCA et al.	Nursing	PHC	2020
A14	Meireles MAC et al.	Medicine	Generalist	2019
A15	Ormonde Junior JC et al.	Nursing	Generalist	2017
A16	Peruzzo HE et al.	Nursing	PHC	2022
A17	Rey-Gamero AC et al.	Health	PHC	2013
A18	Santamaria D et al.	Physiotherapy	Generalist	2012
A19	Valle G et al.	Health	Pre-hospital care	2021
A22	Warmling CM et al.	Dentistry	Generalist	2016

Legend: A - Article; PHC - Primary Health Care; NASF - Family Health Support Center; ICU - Intensive Care Unit.

It is noteworthy that two-thirds of the articles were published within the last six years of the period under review. The collection of articles focused on health profession profiles with the following emphases: primary care, pre-hospital care, hospital care, or without specification, categorized as general emphasis. We identified 11 profiles (55%) of nursing professionals, four (20%) of health teams, two (10%) of medicine, and one of dentistry (5%), physiotherapy (5%), and nutrition (5%). In the next sections, the articles were categorized according to the typologies found in the outline of the profiles: (i) professional domains or roles; and (ii) areas of competency.

Professional domains or roles: emphasis on individual abilities

Of the 20 analyzed profiles, eight articles outlined the profile of health professionals by describing domains, abilities, or professional roles (Frame 2).

Frame 2. Competence areas in the profiles of the selected sample.

Domains/Capabilities	A1	A2	A3	A4	A5	A10	A13	A17
Administration/Management/Planning	X	X	X	X	X	X	X	
Health Care/Attention	X			X	X		X	
Profession-specific skills		X				X		X
Generic skills						X		X
Collaboration			X	X		X		
Communication and interpersonal relationships	X				X		X	
Health Education and Continuing Education		X	X	X	X	X	X	
Ethics, Humanities and Culture	X	X	X				X	X
Leadership			X		X		X	
Research and scientific techniques		X						
Public policies and health systems	X					X		
Promotion and prevention			X					
Evidence-based health			X					
Supervision				X				
Decision-making					X		X	
Teamwork or intersectoral work						X	X	

Legend: A - sample articles.

The articles analyzed in this sub-set of the sample describe domains through professionals' abilities, such as collaboration, communication, leadership, or supervision. Besides these abilities or the roles of collaborator, communicator, and leader, sets of abilities related to ethics were mentioned, as well as generic abilities and some specific attributes of the professions. In seven out of the eight articles (A1, A2, A3, A4, A5, A10, and A13), sets of administration/management/planning abilities were presented. In six out of the eight articles (A2, A3, A4, A5, A10, and A13), abilities from the education area were presented. Abilities related to clinical care (health care) were identified in four out of the eight articles (A1, A4, A5, A13) and in article A17, they were linked to the specific capabilities of the professional's role in Primary Health Care.

Outlining the competency profile according to roles or domains is based on two internationally influential frameworks in healthcare: the CanMEDS medical profile¹⁸, first published in 1990 and updated in 2005 and 2015 by the Royal College

of Physicians and Surgeons of Canada, and the profiles published since 1981 by the Accreditation Council for Graduate Medical Education (ACGME) in the United States¹⁹.

The CanMEDS proposes seven social roles: (i) Communicator, (ii) Collaborator, (iii) Leader, (iv) Health Advocate, (v) Scholar, (vi) Professional, and (vii) Medical Expert, presented in the format of key competencies characterized by cognitive attributes, skills, and professional values¹⁸. The ACGME proposes milestones for graduate education, according to professionalism, interpersonal and communication skills, clinical knowledge and skills, patient-centered practice, and evidence-based and systems-based practice¹⁹. The two approaches started to be used by other health professions, especially nursing^{20,21}.

In Brazil, the modeling of social roles can be observed in the Undergraduate Curricular Guidelines (DCN) for different health professions, first published in 2001. This type of outline still has a significant influence on the training, management, and hiring of health professionals in the country²².

In the subgroup of the sample classified as professional roles, it is noteworthy that, besides the description of domains, a large part of the articles also included sets of abilities that coincide with the notion of areas of competency.

Areas of competency: emphasis on professional activities and work

In 12 articles (60%) from the sample, the professional profile was outlined exclusively according to groups of actions, largely named as “areas of professional competency”.

Frame 3. Competence areas in the profiles of the selected sample.

Competence areas	A6	A7	A8	A9	A11	A14	A15	A16	A18	A19	A20
Health Care		X	X		X	X	X		X	X	X
Health Management		X	X	X		X		X		X	X
Health Education	X		X			X					

Legend: A - sample articles.

Some articles did not mention the term “area of competency” and presented the profile activities in a more straightforward way: for example, Healthcare Competencies. Six articles focused on one single area of competency. Three of them were connected with “Healthcare” (A11, A15, and A18), two with “Health Management” (A9 and A16), and one with the area of “Education” (A6). In article A6, although only the area called “Health Education” was explored, the authors explained that the profile under review included three areas: Health, Management, and Education, confirmed by a search in the indicated reference²³. The presentation of two areas of competency, “Health Management” and “Healthcare”, was found in five of the 11 articles (A7, A8, A14, A19, and A20). In two of them (A8 and A14), the area of “Education” was also mentioned, and in the case of A8, it was necessary to access the competency profile based on the references indicated in it^{24,25}.

Article A12 presents the concepts of field and core as the theoretical framework for the areas of competency. Initially introduced by Bourdieu²⁶ and adapted by Campos²⁷, these concepts allow for an improved identification, in the competency profile, of organizing axes for health management and training. According to Campos²⁷:

[...] the core delimits the identity of an area of knowledge and professional practice [...] [representing] an agglutination of different types of knowledge [...] that configures a certain pattern [...] of production of usage values; and the field [configures] a space of indefinite limits in which each [...] profession searches for support in other [disciplines] to perform its theoretical and practical tasks. (p. 220)

Thus, areas of competency are groups of actions grounded on certain processes, rationalities, or predominant styles of thought²⁷. The actions of these areas allow for the identification of problems and challenges related to an object and organize interventions according to the desired results, based on professional action. One of these areas represents and distinguishes core and specificity in the action of each health profession.

In the studied sample, the professional core was generically named “Healthcare” or “Health Assistance”, and was specifically qualified according to professional action, as in “Medical Healthcare” or “Nursing Healthcare” or “Dental Healthcare”. The other areas, which constitute the field of action common to health professionals, were named “Health Management” or managerial competencies, and “Scientific Investigation” or “Education”, which was specified in Portuguese as “Educação na Saúde” and “Educação em Saúde” (“Health Education”).

The activities performed according to abilities and rationalities predominant in the health management and education processes were found in the sample’s different professional cores.

Professional identity: the area of core competency

Clinical intervention in the health-disease process of people, groups, or societies represents the object/purpose of this area of competency. The actions or performances grouped in it configure a certain pattern of usage value production.

In the articles that explored the area of core competency of different health professionals, we found actions that characterize and distinguish the clinical practices of nursing (A6, A7, A9, A11, A15, A16), medicine (A8 and A14), physiotherapy (A18), and dentistry (A20). In the groups related to the professional core, we identified actions predominantly grounded on the clinical-epidemiological rationality applied to the profession, as shown by the excerpts below:

Identifies health needs by conducting medical histories, performing physical examinations, formulating diagnostic hypotheses, and prioritizing problems.
(Physician - A14)

Carries out timely actions in response to clients' health problems, classifies the level of suffering, defines treatment, and minimizes risks in caregiving. (Nurse - A11)

Recognizes oral diseases and refers patients for clinical care. (Dental Health Technician - A20)

Shared field of professions: the areas of health education and management

"Health Management" actions, usually named managerial competencies, were explored in seven (A7, A8, A9, A14, A16, A19, A20) out of the 11 articles that explored areas of professional competency. Targeted at the management of processes and people, the presence of this area reveals the degree of expansion and diversification of health actions, as well as the urgent need to connect professional practices and interprofessional work processes. In addition, it reflects innovative trends in the organization of health work that incorporate planning, execution, and assessment into the professionals' daily routine and the work of healthcare teams into healthcare networks. The actions of this area were predominantly grounded on strategic reasoning targeted at the identification of problems related to the organization of health work and the production of interventions.

Analyzes the physical and organizational structure of health and nursing services, with a focus on interventions to improve the work process. (Nursing - A7)

Interacts with other sectors in health promotion activities. (Dental Health Technician - A20)

Besides actions that establish practices targeted at the organization of collective health work, we identified, in the management area, actions and abilities related to the roles of leadership, communication, decision-making, administration, management, teamwork, ethics, and care management. For example:

Identifies the elements of institutional policies related to human and non-human resources and their determinants in managing personnel, materials, equipment, costs/finances, environments, technologies, information, and health and nursing care. (Nurse - A7)

Ability to influence people in order to meet or exceed the institution's goals, investing in professional development while respecting diversity. (Nurse - A9)

Concerning the “Education” area, the abilities and activities identified in this area of competency included concepts related to educational health activities and also to health professionals’ education. Thus, we found actions organized according to the predominance of the critical-reflective rationality and connected with lifelong learning, and actions related to knowledge dissemination and production. In this area, we also identified the abilities of communication, leadership, ethics, permanent education, scientific investigation, and evidence-based health. The example below illustrates the actions found in the area of education:

Promotes the development of the ability to learn how to learn with people, the team, and the community based on learning needs, valuing prior knowledge, fostering the curiosity and intellectual autonomy of those involved in care and health education through interaction and group cooperation, listening to and respecting different ideas, and promoting inter/transdisciplinarity. (Nurse - A6)

The emergence of an area of competency that includes educational actions points to the professionals’ challenge/commitment to keep up with the development of knowledge and the transformation of their own practices. In this sense, the need for lifelong learning and the relevance of the health work daily routine as a learning space for patients, families, caregivers, health professionals, teams, and managers were highlighted in the different profiles.

Activity theory in the construction of professional profiles

In 2005, the concept of entrustable professional activities, introduced by ten Cate²⁸, focused on verifiable actions that can be attributed to professionals as a strategy to infer competency²⁹.

In Brazil, the review of the curricular guidelines for undergraduate medicine programs²⁵, published in 2014, gave visibility to the areas of competency in the outline of the professional profile. In a similar way to the orientation of entrustable professional activities²⁹, this outline uses the dialogic approach to competency^{30,31} and focuses on professional actions and the context of work as aspects that structure the profile, outlining it according to areas of competency. Through the areas, the elements that constitute competency, the predominant rationalities, and the dimensions of the construction process of the profiles are revealed. In the nursing area, a similar movement represented by the 2018 technical opinion³² provides recommendations for a review of the nursing guidelines, indicating the utilization of competency areas or cores instead of roles.

In order to enhance the theoretical foundation of competency areas from a systemic perspective of health work, associating the concepts of field and core^{26,27} with activity theory³³ allows for a better analysis of the subject/object relationship and the individual and collective dimensions in the inference of competency¹¹.

Frequently employed in the area of administration, which started to investigate organizational learning, the concept of activity aims to identify factors related to

the production of practices, their motivations and relations³⁴. Thus, the essence of phenomena and processes starts to be considered inseparable from their relations and can only be understood in the context of a system of relations^{11,35}.

As for Activity Theory, the first generation can be identified in the works of Vygotsky³⁶, who highlighted the notion of cultural mediation of human action, that is, mediation or moderation of the subject/object relationship by means of cultural artifacts, schematized by a triangle (Figure 2).

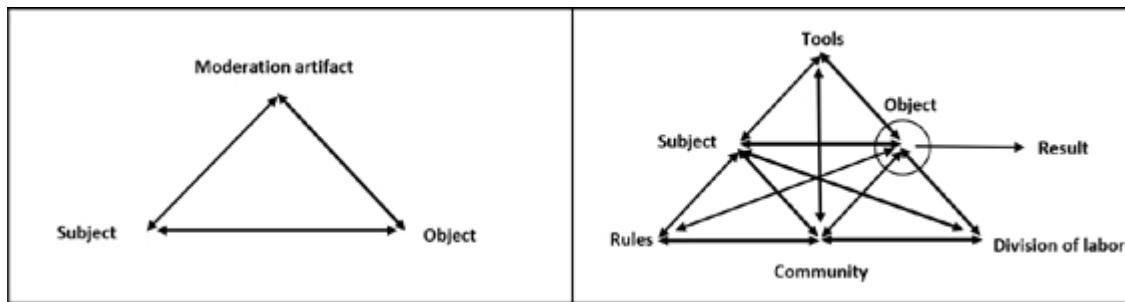


Figure 2. First³⁶ and third generation triangles (Activity System)³⁷.

Leontiev³⁸ expanded the focus on the individual and distinguished individual actions from collective activities, which characterized the second generation of Activity Theory. Based on Vygotsky's and Leontiev's contributions, the third generation of Activity Theory was proposed by Engeström³⁷ through the interface of several triangles that established, beyond the subject-artifacts-object relationship, an interface with other elements: community, rules, and division of labor, which institute an activity system. According to this author³⁷:

[...] an activity system refers to the relatively stable formation of a group of people embedded in a system that has its own instruments, rules, and division of labor, with the aim of shaping a shared object. (p. 242)

The relations between the system's elements are dialogic and influence each other mutually in the production of results. These articulations expand the subject/object relationship through the recognition of the presence of intervening aspects with different degrees of determination, such as (i) the knowledge, instruments, technologies, methods, and resources used by the subject to perform the activity; (ii) the best practices, norms, guidelines, regulations, or conventions that guide and influence the performance of the activity; (iii) the way in which activities are performed and responsibilities are shared; and (iv) the social context in which the activity occurs.

The concept of an activity system provides an epistemological and methodological framework that supports the development of competency areas, not as a set of idealized performances to be attained - as might be suggested by standardizing approaches - but rather as dialogical activators. Multiple objects emerge and inherent contradictions derive from the diversity of conceptions that comprise a system. When competency profiles are approached through the activities that characterize the

practices of health professionals, they illuminate blind spots and favor dialogic visits to the multiple lines of professional action, always aiming at the shared expansion of objects. This, in synthesis, creates conditions for the emergence of a conversational network of interactions supported by collaborative values that can foster systemic and sustainable care³⁷.

Articulation of the individual and social dimensions in areas of competency

Focusing on the man-work, subject-object, and individual-society relationships requires an expansion of the paradigm established by linear thought to include the intersections that exist between the physical, biological, subjective, and sociological sciences. To Schwartz³⁹:

‘Work’ is both a living evidence and a notion that eludes any simple, univocal definition. It is undoubtedly in this ‘and’ that connects ‘work’ and ‘men’ that probably lies the source of this enigmatic character that generates paradoxes and allows for the question: what is at stake - of man - in work? (p. 32)

The idea of work as a mix of visible and invisible elements was approached by Schwartz³⁹ to highlight the social nature of the process of reproduction and transformation of human existence. The author quotes François Daniellou⁴⁰ who, in the collection “Ergonomics: in search of its principles”, explains the chain that reconnects subject-object according to historical contexts, experiences, values, and rules:

In their activities, men and women weave through their work. Regarding the fabric, the threads reconnect them to a technical process, to the properties of materials, tools, or clients, to economic policies - sometimes developed in another continent -, to formal rules, to the control of others... Regarding the chain, they are reconnected to their own history, to their bodies that learn and age; to a multitude of work and life experiences; to many social groups that have offered them knowledge, values, and rules with which they produce day after day; to relatives, who are sources of energy and concern; and to their projects, desires, anxieties, and dreams⁴⁰. (p. 1)

Thus, the social dimension in the concept of competency, with a focus on the relationships between subject and work, is a perspective to which Activity Theory adds systemic explanations, which are dialogic, dynamic, and complex. Schwartz¹¹ argues that the social dimension can be detected in the components of competency - or ingredients, as he prefers to call them -, which characterize a professional activity and represent the subject’s action/intervention on reality with no predefined limit, synthesizing and reconnecting everything that used to be separated. In this sense, Schwartz¹¹ defines that:

[...] every activity is, on one hand, the application of a protocol and, on the other, an encounter of management... we can say that every activity is a debate, a drama in the sense that something happens, between antecedent norms - everything that is on the side of experimentation and protocol - and everything that constitutes the encounter of encounters. (p. 43)

The construction of competency, grounded on work and the interfaces among various activity systems, is radically different from approaches rooted in the transmission of specific knowledge derived from professional cores. Even if we consider the application of a specific healthcare technique, using clinical protocols and guidelines while contextualizing them according to the singularity of each patient and situation is still a challenging endeavor.

In this sense, Engeström and Kärkkäinen⁴¹ argue that the world of labor has been increasingly organized by horizontal movements that, beyond the shared field, expand or blur the frontiers of the professional cores. To these authors, specialists operate and move between multiple contexts of parallel activities. These multiple contexts require and offer cognitive tools, rules, and social interaction patterns that are different and complementary, but also conflicting. Thus, the construction of competency occurs simultaneously in the individual and social dimensions, as it requires the challenge of negotiating and combining singular elements from different activity systems to reach effective results in interprofessional, organizational, economic, social, and cultural contexts.

Schematic representation of competency

In both approaches discussed here - domains and areas of competency -, there is an effort to communicate the interconnection between the distinct elements that constitute competency^{15,18}. However, representational schemes should be used with caution due to the risk of reducing the complexity of the represented ideas.

Concerning areas of competency, the intertwining of the three areas can be represented by Borromean rings⁴². In mathematics, Borromean rings or links are mutually intertwined, in such a way that the removal of one ring disconnects all of them⁴².

The association between the idea of the interconnection of Borromean rings and certain characteristics of the Möbius strip supports the representation of the areas of competency and can promote a better understanding of the interaction between the individual and social dimensions of competency. Created by the mathematician and astronomer August Ferdinand Möbius in 1858, the Möbius strip is a non-orientable object in which it is not possible to determine the top and bottom or inside and outside parts. It is obtained by twisting and joining the two ends of a rectangular strip. Applying three half-twists to a Möbius strip results in a trefoil knot.

In Brazil, the first schematic representation of areas of competency aiming to represent continuity and intertwining can be found in the logotype (FIGURE 3) produced for the course Activators of Processes of Change for Health Professionals, an

educational initiative at the graduate level that was started in 2005 by Escola Nacional de Saúde Pública and Rede Unida^{43,44}.

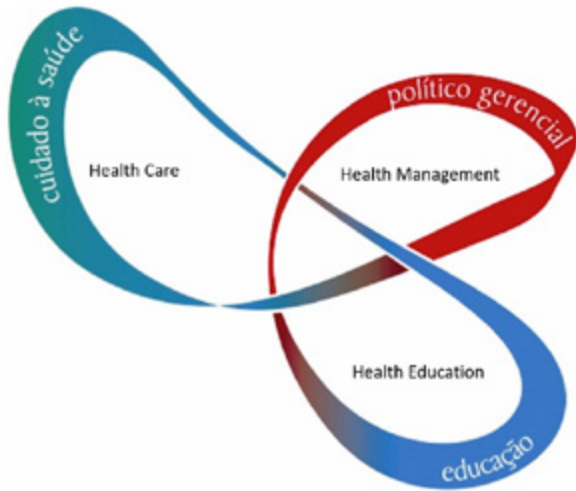


Figure 3. Representation of competence areas as Borromean rings and as a topographic object.

The representation of the competency profile using the characteristics of Borromean rings and the Möbius strip conveys movement and the connection of one area to another, as well as the intersection among the helices. The notion of a topographic object indicates an endless path to be traveled, much like what occurs in the construction of competency. The folded helices represent contiguity, interaction, and inseparability between the individual and collective dimensions in the construction of competency, according to the systemic perspective of health work. Therefore, the systemic perspective solidly supports the approach of areas of competency, identified as a tendency in the construction of competency profiles within the area of health.

Final remarks

When we face the uncertainty and complexity of the changing contexts of the current world, the training and the organization of work guided exclusively by the individual possession of knowledge have proved to be insufficient, favoring the identification of other elements that constitute competency. Models that seek a more dialogic organization of the elements of competency, articulating abilities and activities in increasingly multi-professional and interdisciplinary contexts, have been competing with models based on professionals' individual and core abilities.

Considering the three categories of analysis of the present study, we have shown, through the analyzed articles, a tendency towards the use of areas of competency in the definition of health professionals' profiles, mainly in articles related to nursing.

Areas of competency, grounded on the concepts of core and field, allow for identifying axes to organize management and training, as health work activities are predominantly performed by collectives of professionals. Thus, Activity Theory,

associated with the dialogic approach to competency, favors the recognition of systemic relations present in the world of labor, which become more evident in the competency profiles constructed according to areas of competency. Furthermore, the social and collective dimension in the construction of competency is also revealed in the relations of mutual influence and determination established by the knowledge, instruments, technologies, methods, and resources used by the subject to perform the activity; by the best practices, norms, guidelines, regulations, or conventions that guide the performance of the activity; by the way in which activities are performed and responsibilities are shared; and, finally, by the social context in which the activity occurs. These conditioners were better presented in the profiles outlined according to areas of competency, although they lack conceptual robustness in the recognition of the systemic relations that result in the competency profile. This approach requires further investigation and reflection.

The idea that competency-oriented training occurs through work and not for work implies that the process of competency construction results from a systemic perspective applied to the analysis of the subject/object relationship. When competency areas are oriented through health work, they allow for recognizing that the subject/object relationship is mediated by the imbricated interaction of different systems of activity and social relations, restraining the contradictions and ambiguities that are inherent in open and interconnected systems.

Finally, regarding the construction of competency profiles for health professionals, two focuses of tension emerge from the needs of the post-modern society and the globalized markets: the expectation that the professionals must adapt to new demands and the possibility of transformation of existence and work. The outcomes stemming from these diverse focuses keep debates on competency and the education/work relationship open and ongoing..

Authors' contribution

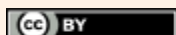
All authors actively participated in all stages of preparing the manuscript.

Conflict of interest

The authors have no conflict of interest to declare.

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Editor

Roseli Esquerdo Lopes

Associated editor

Volmir José Brutscher

Translator

Carolina Siqueira Muniz Ventura

Submitted on

03/06/24

Approved on

09/28/24

References

1. Deluiz N. Qualificação, competências e certificação: visão do mundo do trabalho. In: Ministério da Saúde. Formação. Humanizar cuidados de saúde: uma questão de competência. Brasília: Ministério da Saúde; 2001. p. 7-17.
2. Ropé F, Tanguy L, organizadores. Saberes e competências: o uso de tais noções na escola e na empresa. Campinas: Papirus; 1997.
3. Fleury MTL, Fleury A. Construindo o Conceito de Competência Construindo o Conceito de Competência. RAC. 2001; Spec No:183-96.
4. Friedmann G, Naville P, organizadores. Tratado de sociologia do trabalho. São Paulo: Cultrix; 1973.
5. Wong SC. Competency definitions, development and assessment: a brief review. Int J Acad Res Progr Educ Develop. 2020; 9(3):95-114.
6. Irigoin M, Vargas F. Competencia laboral: manual de conceptos, método y aplicaciones en el sector salud. Montevideo: Cinterfor; 2002.
7. Ramos MN. Pedagogia das competências: autonomia ou adaptação? São Paulo: Cortez; 2001.
8. Zarafian P. Objetivo competência: por uma nova lógica. São Paulo: Atlas; 2001.
9. Schwartz Y. The components of competency, a necessary exercise for an unsolvable problem. Educ Soc. 1998; 19(65):101-40.
10. Le Boterf G. Desenvolvendo a competência dos profissionais. Porto Alegre: Artmed; 2003.
11. Schwartz Y, Durrieu L, organizadores. Trabalho e ergologia: conversas sobre a atividade humana. Niterói: EdUFF; 2010.
12. Fleck L. Gênese e desenvolvimento de um fato científico. Belo Horizonte: Fabrefactum; 2010.
13. Ramos M. Filosofia da práxis e práticas pedagógicas de formação de trabalhadores. Trab Educ. 2014; 23(1):207-18.
14. Brasil. Ministério da Saúde. Conselho Nacional de Saúde. Resolução n° 287, de 8 de Outubro de 1998. Brasília: Ministério da Saúde; 1998.
15. Minayo MCS. Hermenêutica-dialética como caminho do pensamento social. In: Minayo MCS, Deslandes SF, organizadores. Caminhos do pensamento: epistemologia e método. Rio de Janeiro: Fiocruz; 2002. p. 83-107.
16. Gomes R. Análise e interpretação de dados de pesquisa qualitativa. In: Minayo MCS, organizadora. Pesquisa Social: teoria, método e criatividade. Petrópolis: Vozes; 2007. p. 79-108.
17. Whittemore R, Knafl K. The integrative review: update methodology. J Adv Nurs. 2005; 52(5):546-53.
18. Frank JR, Snell L, Sherbino JE, editors. CanMEDs 2015 Physician Competency Framework. Ottawa: Royal College of Physicians and Surgeons of Canada; 2015.
19. Andolsek KM, Jones MD Jr, Ibrahim H, Edgar L. Introduction to the Milestones 2.0: assessment, implementation, and clinical competency committees supplement. J Grad Med Educ. 2021; 13 Suppl 2:1-4.

20. Brasil. Conselho Nacional de Educação. Resolução CNE/CES nº 3, de 7 de Novembro de 2001. Institui Diretrizes Curriculares Nacionais do Curso de Graduação em Enfermagem, 2001. Brasília: CNS; 2001.
21. Massachusetts Department of Higher Education. The Massachusetts nursing core competencies: a toolkit for implementation in education and practice. Boston: Massachusetts Action Coalition; 2016.
22. Nicola RMS, Vosgeral DSAR. Conceitos e enfoques em competências nas pesquisas brasileiras: uma revisão narrativa. *Rev e-Curric*. 2019; 17(1):107-44.
23. Faculdade de Medicina de Marília. Projeto pedagógico do Curso de Enfermagem [Internet]. Marília: Faculdade de Medicina de Marília; 2018 [citado 22 Ago 2022]. Disponível em: https://www.famema.br/ensino/cursos/docs/Projeto%20Pedag%C3%B3gico%20da%20Enfermagem%202018_Final.pdf
24. Universidade Federal de São Carlos. Centro de Ciências Biológicas e da Saúde. Projeto político pedagógico do curso de graduação em Medicina [Internet]. São Carlos: Universidade Federal de São Carlos; 2007 [citado 22 Ago 2022]. Disponível em: <https://www.dmed.ufscar.br/arquivos/projeto-pedagogico-2007>
25. Brasil. Ministério da Educação. Conselho Nacional de Educação Câmara de Educação Superior. Resolução nº 3, de 20 de Junho de 2014. Institui as Diretrizes Curriculares Nacionais do curso de graduação em Medicina e dá outras providências [Internet]. Brasília: Ministério da Educação; 2014 [citado 22 Ago 2022]. Disponível em: http://portal.mec.gov.br/index.php?option=com_docman&view=download&alias=15874-rces003-14&category_slug=junho-2014-pdf&Itemid=30192
26. Bourdieu P. O campo científico. In: Ortiz R, organizador. Pierre Bourdieu: Sociologia. São Paulo: Editora Ática; 1983. p. 122-55.
27. Campos GWS. Saúde pública e saúde coletiva: campo e núcleo de saberes e práticas. *Cienc Saude Colet*. 2000; 5(2):219-30.
28. Ten Cate O. Entrustability of professional activities and competency-based training. *Med Educ*. 2005; 39(12):1176-7.
29. Ten Cate O. Competency-based postgraduate medical education: past, present and future. *GMS J Med Educ*. 2017; 34(5):Doc69.
30. Lima VV. Competência: distintas abordagens e implicações na formação de profissionais de saúde. *Interface (Botucatu)*. 2005; 9(17):369-79. doi: 10.1590/S1414-32832005000200012.
31. Lima VV, Ribeiro ECO. Abordagem dialógica de competência: pressupostos e percurso metodológico para a construção de perfis na área da Saúde. *Interface (Botucatu)*. 2022; 26:e210737. doi: 10.1590/interface.210737.
32. Brasil. Conselho Nacional de Saúde. Resolução nº 573, de 31 de Janeiro de 2018 com recomendações à proposta de Diretrizes Curriculares Nacionais (DCN) para o curso de graduação Bacharelado em Enfermagem. Brasília: CNS; 2018.
33. Engeström Y. Learning by expanding: an activity-theoretical approach to development research. Helsinki: Orienta-konsultit; 1987.
34. Querol MAP, Casandre MP, Bulgacov YLM. Teoria da atividade: contribuições conceituais e metodológicas para o estudo da aprendizagem organizacional. *Gest Prod*. 2014; 21(2):405-16.
35. Engeström Y. Expansive learning at work: toward an activity theoretical reconceptualization. *J Soc Educ Work*. 2001; 14(1):133-56.

36. Vygotsky LS. A formação social da mente. 4a ed. São Paulo: Martins Fontes; 1991.
37. Engeström Y. A teoria da atividade histórico-cultural e suas contribuições à educação, saúde e comunicação: entrevista com Yrjö Engeström. *Interface (Botucatu)*. 2013; 17(46):715-27. doi: 10.1590/S1414-32832013000300018.
38. Leontiev AN. Actividad, conciencia y personalidad. Ciudad de México: Editorial Cartago de México; 1984.
39. Schwartz Y. Conceituando o trabalho, o visível e o invisível. *Rev Trab Educ Saude*. 2011; 9 Supl 1:19-45.
40. Daniellou F. L'ergonomie en quête de ses principes. Toulouse: Octarès; 1996.
41. Engeström Y, Kärkkäinen M. Polycontextuality and boundary crossing in expert cognition: learning and problem solving in complex work activities. *Learn Instr*. 1995; 5(4):319-36.
42. Canterella J, Fu JHG, Kusner R, Sullivan JM, Wrinkle NC. Criticality for the Gehring link problem. *Geom Topol*. 2006; 10:2055-115.
43. Lima VV, Feuerwerker LCM, Padilha RQ, Gomes R, Hortale VA. Ativadores de processos de mudança: uma proposta orientada à transformação das práticas educacionais e da formação de profissionais de saúde. *Cienc Saude Colet*. 2015; 20(1):279-88.
44. Fundação Oswaldo Cruz. Caderno do especializando. Rio de Janeiro: Fiocruz; 2005.

Este artigo aborda a discussão sobre áreas de competência nos processos de gestão do trabalho e de formação na saúde. Metodologicamente, trata-se de uma revisão integrativa realizada em bases especializadas de dados no período de 2012 a 2022. Uma amostra com vinte artigos mostrou a presença de duas tipologias na representação dos perfis de profissionais de saúde: domínios e áreas de competência, sendo observada uma tendência ao uso de áreas de competência. Os conceitos de campo e núcleo e a teoria da atividade foram utilizados na discussão dos resultados, considerando a explicitação de: (i) eixos orientadores para a formação e a gestão do trabalho; (ii) atividades profissionais segundo racionalidades predominantes e melhores práticas; e (iii) conexões entre as dimensões individual e coletiva da competência.

Palavras-chave: Competência. Trabalho. Saúde. Gestão. Educação.

Este artículo aborda la discusión sobre áreas de competencia en los procesos de gestión del trabajo y de formación en la salud. Metodológicamente, se trata de una revisión integradora realizada en bases especializadas de datos, en el período de 2012 a 2022. Una muestra con veinte artículos mostró la presencia de dos tipologías en la representación de los perfiles de profesionales de salud: dominios y áreas de competencia. Con una tendencia al uso de áreas de competencia, los conceptos de campo y núcleo y la teoría de la actividad se utilizaron en la discusión de los resultados, considerando la explicitación de: ejes orientadores para la formación y la gestión del trabajo; (ii) actividades profesionales según racionalidades predominantes y mejores prácticas y (iii) conexiones entre las dimensiones individual y colectiva de competencia.

Palabras clave: Competencia. Trabajo. Salud. Gestión. Educación.