Teaching-service integration in the fight against COVID-19

A integração ensino-serviço no enfrentamento à covid-19

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Abstract

This study analyzes the teaching-service integration as a strategy for Permanent Health Education against COVID-19, in healthcare services of the Municipal Health Department of João Pessoa, in the state of Paraiba (SMS/JP). This is an exploratory, comprehensive-interpretative study with a qualitative approach. The scenarios were the SMS/JP services, which carry out actions to combat COVID-19 and serve as practice spaces for educational institutions. Data were collected through semi-structured interviews and focus groups, conducted with service managers, health professionals, residence coordinators, and residents. The analysis allowed us to identify the circumstances and adversities that arose during the period of agreements and renegotiations of practice scenarios during the pandemic. Also highlighting the contributions of the teaching-service integration to the qualification process of workers and students in the face of COVID-19 and the relationship with the needs of the services, from the qualification movements, elaboration of protocols, sheets, forms, and creation of discussion spaces. It was confirmed that teaching-service integration is a powerful permanent health education strategy, considering the articulation between service agents and educational institutions, provoking the development of a critical-reflective look at the service, boosting learning spaces, evolution, and growth.

Keywords: Teaching and Service Integration; Permanent Health Education; COVID-19; Internship and Residence; Health Management.

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Resumo

Este artigo analisa a integração ensino-serviço como estratégia de Educação Permanente em Saúde no enfrentamento à covid-19 em serviços da Secretaria Municipal de Saúde de João Pessoa - PB (SMS/JP). Trata-se de um estudo exploratório, compreensivo-interpretativo com uma abordagem qualitativa. Os cenários foram os serviços da SMS/JP, que realizam ações de enfrentamento à covid-19 e também são espaços de prática de instituições de ensino. Os dados foram coletados por meio de entrevistas semiestruturadas e grupos focais, realizados com gestores dos serviços, profissionais de saúde, coordenadores de residências e residentes. A análise permitiu identificar as circunstâncias e adversidades que surgiram no período das pactuações e repactuações dos cenários de prática durante a pandemia, evidenciando também as contribuições da integração ensino-serviço para o processo de qualificação dos trabalhadores e alunos no enfrentamento à covid-19 e a relação com as necessidades dos serviços a partir dos movimentos de qualificação, elaborações de protocolos, fichas, formulários e criação de espaços de discussão. Desta forma, foi demonstrado que a integração ensino-serviço é uma potente estratégia de educação permanente em saúde, considerando a articulação entre os atores dos serviços e das instituições de ensino, provocando o desenvolvimento de um olhar crítico-reflexivo para o serviço, impulsionando espaços de aprendizado, evolução e crescimento.

Palavras-Chave: Integração Ensino e Serviço;Educação Permanente em Saúde; Covid-19; Internato e Residência; Gestão em Saúde.

Introduction

The regulation of professional training in health is outlined in Article 200 of the Brazilian Federal Constitution and in Law 8,080, dated September 19, 1990, which regulates the Brazilian National Health System (SUS). Several milestones comprise the construction of the regulation and training qualification of health care professionals in Brazil. It all started with the Health Reform movement, which culminated in the origin of SUS, the new Law of Directives and Bases of National Education (*Lei de Diretrizes e Bases da Educação Nacional*, 1996), the new National Curricular Guidelines for Health curricula (*Diretrizes Curriculares Nacionais dos currículos da Saúde*, 2001), the creation of the Secretary of Management of Work and Education in Health (*Secretaria de Gestão do Trabalho e da Educação na Saúde* - SGTES), in 2003. The latter resulted in the National Policy of Permanent Education in Health (*Política Nacional de Educação Permanente em Saúde* - PNEPS) and the training reorientation programs (*Pró Saúde*, *PET Saúde*, *Programa Mais Médicos*) (Zapelon et al., 2017).

The Ministry of Health defines the PNEPS as a strategic action proposal aimed at contributing to the transformation and qualification of health practices, the organization of healthcare actions and services, in addition to the educational processes and pedagogical practices in the training and development of workers in the field (Brasil, 2009).

The aforementioned PNEPS (2009) adheres to the following directives: focus on everyday practice problems faced by healthcare teams; insertion in the work processes following an institutionalized manner; objectivation of transformations in social practices and techniques; and continuity within a consolidation and development project of the SUS.

Therefore, Permanent Health Education (PHE) induces reflections on the link between education and work, as well as the teaching-service integration, incorporating assumptions of meaningful learning and highlighting the social relevance of teaching.

On the teaching-service integration, Albuquerque (2008, p. 357; our translation) emphasizes that this idea expresses:

> The collective, agreed, and integrated work of students and professors of health training courses with workers who are part of the health service teams, including managers, seeking the quality of individual and collective healthcare, the quality of professional training, and the development/satisfaction of healthcare service workers.

Given the initiatives and various discussions regarding the subject, teaching-service integration stands out as an important strategy in favor of changes in the health education process, contributing to transformations of professional practices and the healthcare model.

The healthcare education management in João Pessoa, in the state of Paraíba, derives from the institutionalization of the relationship between the municipal health service network and educational institutions, encompassing the training among managers, workers, and other users, as well as future health professionals and professors of the associated educational institutions.

The municipality of João Pessoa has a is a wide service network with management and care spaces, which serve as a practice field for teaching, research, and technological incorporation in health, playing an important role in the training of both professionals and their teams, with internships for undergraduate students and residencies in health.

Effectively, the SUS network services play a fundamental role in healthcare training and educational processes. Moreover, they are affected by the context in which they are inserted, such as the COVID-19 pandemic, which devastated the world, Brazil, and the state of Paraíba.

Since February 2020, the state of Paraíba addressed suspected cases of COVID-19, confirming the first case in March of the same year. The state structured the contingency plan, organizing the pre-hospital and hospital networks, considering the health regionalization and the vast territorial extension with 223 municipalities. As expected, the first cases of COVID-19 in Paraíba came from other countries via tourism.

The João Pessoa health network was set up as the first line of care, and other regional references were opened when community transmission was decreed. In this sense, reference services were available to assist severe cases of COVID-19, offering Intensive Care Unit (ICU) emergency beds for municipalities in the 1st Health Macro-region of the state of Paraíba, comprised of municipal and state hospitals (Paraíba, 2020).

With the declaration of the pandemic and diagnosis of the first cases, the internships at educational institutions were initially suspended due to the high exposure to risk and the shortage of Personal Protective Equipment (PPE), with residents acting only in some services. The Health Network of the Municipality of João Pessoa kept the presence of residents in some COVID-19 care services, enabling a differentiated experience in meaningful learning and an integration between teaching and service.

Considering the need to deepen the service institutionalization experience of the Municipal Health Department of João Pessoa (SMS/JP) as practice scenarios for training future healthcare professionals, as well as the need to investigate professional training in coping with COVID-19, this study aims to describe the agreed upon forms of practice scenarios and the insertion of students in health services during the pandemic; identify the contributions of teaching-service integration to the service needs while facing COVID-19; and analyze the perception of managers, healthcare service professionals, residency coordinators, and students on the teaching-service integration as a strategy of Permanent Health Education in the pandemic context, throughout health network services of the Municipal Health Department of João Pessoa.

Methodological paths

This is an exploratory, comprehensive-interpretative study with a qualitative approach. This type of study focuses on providing more information on the investigated subject and familiarization with the assessed phenomenon (Leão, 2015).

The research was carried out at the Santa Isabel Municipal Hospital, at the Epidemiological Surveillance Management Department, and at the Coronavirus Prevention Guidelines Center (Guidelines/Telehealth center), which are SMS/JP Health Network services that confronted

COVID-19 and are also practice scenarios for educational institutions.

Regarding the educational institutions, we assessed the following courses, which continued their academic activities: the Multiprofessional Residency Program in Family and Community Health (*Residência Multiprofissional de Saúde da Família e Comunidade* – RMSFC) and Family and Community Medical Residency Program (*Residência Médica de Família e Comunidade* – RMFC), both linked to the Faculty of Medical Sciences (FCM).

The research participants include: (a) one manager from each healthcare service included in the study; (b) two professionals from each healthcare service; (c) coordinators of the residency programs; and (d) six students from the second year of residency (R2) inserted in actions against COVID-19.

Regarding the resident distribution in the practice scenarios, the Santa Isabel Municipal Hospital and the Epidemiological Surveillance Management Department hosted the Multiprofessional Residency Program, while the Guidelines/Telehealth Center hosted the Family and Community Medical Residency Program.

No educators were included in the list of research participants, considering that the activities were performed remotely by most professors during the months selected in the inclusion criteria.

Inclusion criteria considered for health professionals were: those who worked and participated in activities related to COVID-19 along with the residents, between May and June 2020. For students, the criteria were: being R2 residents, participating in the actions against COVID-19 in at least one of the three health services of the study between May and June 2020. We also considered the longest period of activity against COVID-19 in the practice scenarios of this study as an inclusion criterion.

The following exclusion criteria were considered: individuals who were not included in the services between May and June 2020.

Data were collected via interviews and via a focus group hosted between September and December 2020. We interviewed professionals, healthcare service managers, and residency coordinators with a in-person semi-structured interview model, with previously scheduled appointments (using PPE); and held focus group meeting with the residents virtually.

In total, 11 interviews were conducted, scheduled on a convenient day and time for the interviewees. All interviews happened in the participant's workplace, with an average duration of 35 minutes, and recorded with their consent.

A focus group was held virtually with six residents, on an agreed day and time, lasting 2 hours, and recorded with the consent of the participants. The residents were comfortable during the focus group, actively participating in the process, and spontaneously requesting the turn of speech. We observed that the space provided acceptance and interaction among all to share their experiences.

Data were analyzed using the input from the Thematic Content Analysis Technique, proposed by Minayo (2018), with the definition of meaning cores/registration units as guiding axes of the analysis from the priorly established scripts, with the elaboration of an analytical matrix. For each registration unit, we defined categories that allowed us to further explore the obtained results.

This study followed resolution 466/2012 CNS/MS guidelines regarding research involving human subjects and was approved by the Ethics and Research Committee HUOL/UFRN, through Consolidated Opinion No. 4,247,072, of August 31, 2020. The individuals involved here were previously informed about all the procedures, as well as about the purpose of the research, and signed an Informed Consent Form.

Results and discussion

We organized the results into three registration units: 1) Agreement and insertion in healthcare services during the context of the pandemic; 2) Service needs and contributions to teaching-service integration; and 3) Teaching-service integration as a strategy for Permanent Health Education.

Agreement and insertion in healthcare services during the context of the pandemic

To analyze the agreement of practice scenarios and the insertion of students in healthcare

services during the pandemic, we created the following categories:

- Knowledge about the agreement and steps taken;
- Modes of insertion of students.

Knowledge about the agreement and steps taken

The conjuncture of the pandemic caused by COVID-19 led educational institutions and the Healthcare Service Management Department in João Pessoa to reevaluate the insertion of students. This happened due to the high health risk, unfamiliarity with the disease and the service needs when facing the health emergency.

The practice scenario agreements for educational institutions in João Pessoa occurs via the SUS School Network, a policy coordinated by the Health Education Management Department (GES), from SMS/JP. It is formalized through agreements signed between GES/SMS-JP and educational institutions, which are interested in using the municipal healthcare network as a setting for practice and learning.

During the period spanning from the beginning of the pandemic until the decrease in the number of cases in the second half of 2020, the RMSFC and RMFC residency programs reorganized their insertion in the services, taking the presented panorama and the challenges faced in the healthcare network into account. The three research scenarios were strategic services for João Pessoa, and students from the aforementioned residency programs participated in all of them.

At the beginning of the pandemic, the Multiprofessional Residency program coordination board held a meeting with the SMS/JP management team to deliberate on the re-agreement of practice scenarios. They considered the following factors as priorities: 1) closure of some healthcare services; 2) a change in the profile of the Santa Isabel Hospital to prioritize COVID-19 care; and 3) the strategic role of the Epidemiological Surveillance Management Department.

During the interviews, we found coherence and observed that the service managers, the residency coordinator, and the residents were aware of the agreement made for the pandemic period, with the distribution of residents in the Santa Isabel Municipal Hospital (HMSI) and the Epidemiological Surveillance Management Department (GVIEP), according to the identified needs.

The interviewed epidemiological surveillance professionals clearly reported that they were aware of the agreement on the recurring insertion of residents in the service, both at regular times and during the health emergency.

At the Santa Isabel Hospital, on the other hand, the interviewed professionals stated that they were not aware of the arrival of residents. However, they reported that they had informed the service managers about the need to increase the number of professionals in the teams.

We understand that the practice scenario agreement is an important moment for the consolidation of the teaching-service integration. Therefore, attention should be paid, not only to the learning demands of students, but also to the needs and capacities of healthcare services, all while keeping a dialogue and close collaboration with professionals and service managers.

Neves and Koifman (2021, p. 6; our translation) state that "the choice of a learning scenario field involves listening to managers, workers, and users, as well as respect, reflections on performance, and coordinated work."

The COVID Guidelines Center is a Telehealth service that was created after the pandemic and in the first Decree of the Municipality of João Pessoa, in the second half of March 2020. Considering that the agreement on this service led to its implementation, we will present the steps of its agreement and implementation based on the interviewee reports.

A few days before the first cases of COVID-19 in João Pessoa, the Family and Community Medicine Residency Programs (FCM, UFPB, and UNIPÊ) presented proposals to the SMS/JP for the structuring and implementation of a telehealth service to reduce the flow of sick individuals, thus decreasing the spread and transmission of the disease.

To solidify the implementation of the service, the residency coordination board organized a meeting involving professors, professionals/

preceptors, medical graduates who were working in the healthcare network, and residents. The goal was to inform them about the agreement and the proposal for the implementation of the Telehealth Center, which would be built collaboratively.

The pandemic period demanded quick and efficient organization from healthcare service managers and educational institutions to respond to the rapid spread of COVID-19. This required effective strategies in a scenario of social distancing and the need to control viral transmission, severe cases, and deaths.

Regarding this implementation, it is possible to witness in the statements of professionals and residents that the space played a role in sharing information, as follows:

> *The service is municipal, but its implementation originated from the Family and Community Medicine Residency Program, created out of the need imposed by the current context.* (Professional I COVID Guidelines Center)
>
> *The telehealth service was implemented during the pandemic period as an alternative to address the volume of cases and provide initial guidance.* (Resident I COVID Guidelines Center)

With COVID-19, residency programs needed to be reinvented to adapt, not only by changing their involvement according to the healthcare service organization, but also by experimenting with alternative methodologies, with an accelerated use of technology in both practice and education (Caetano et al., 2021).

Implementing a telehealth service was crucial for the population, especially at a time when social distancing was extremely necessary, and when keeping the population informed about prevention and risks would have a significant impact on reducing the spread of COVID-19 and on protecting people.

Modes of insertion of students

The arrival of the residents to the practice scenarios at the Santa Isabel Municipal Hospital and the Epidemiological Surveillance Management Department occurred in different ways and at different times, as we can observe in the description built from the input of professionals, managers, coordinators, and residents.

The reception of residents at GVIEP happened swiftly through a meeting, where the surveillance structure and the COVID-19 response scenario were presented. The professionals and the sector coordinator clearly described this initial moment, while the residents reported that it was a quick moment focused on the health emergency, with an urgent need for practical action.

Araújo (2017) states that the insertion of residents in healthcare services raises questions about how these professionals become integrated and what the changes arising from this process are, as they have to adapt to the evolving healthcare model.

Given this rapid reception emergency and, perhaps, with little initial information to the residents, the challenge of establishing closeness, integration, and building the daily work process became evident.

Organizing the insertion of residents in the epidemiological surveillance work process enabled teamwork, with opportunities for dialogue and reflection on the work process, generating autonomy for residents and a learning experience for residents and professionals.

At the HMSI, residents arrived during the service-structuring phase, before the admission of the first case of COVID-19, which was important to establish closer relationships between professionals and residents and build a sense of teamwork.

The modes in which the insertion occured in the practice scenario, the reception, the approximation of the team, and the work process can affect the adaptation and facilitation of the development of teaching-learning processes. A smoother integration allowing visits, recognition, and immersion in the healthcare service sparked in the residents a sense of belonging as part of the healthcare team and of that particular space.

Learning scenarios are important places for health education, serving as privileged spaces in the teaching-learning process. The immersion of students in the daily life of healthcare services teaches the organization of work processes, management, and care. (Albuquerque et al., 2008; Henrique, 2005).

The integration of residents in the HMSI occurred in sectors that had to reorganize their workflows and work processes to care for COVID-19 patients. The residents experienced the organization of the service toward COVID care by participating in moments of discussion, structuring, and practice organization.

For Piovesan (2019), incorporating residents into healthcare assistance, as well as in management and PHE spaces, culminates in autonomy, allowing them to be co-participants in guiding the team's work processes by questioning, suggesting pathways, and direction shifts.

The Multiprofessional Residency Program lacked formally designated preceptors in the action fields related to COVID-19. However, it is evident from the reports that professionals displayed sensitivity in being closer to the residents at certain times, taking on roles of supervision and guidance, organizing the work process, as well as listening and sharing experiences, as reflected in the following statements: "*We needed the workers to understand that, in the field, they were the preceptors for the residents.*" (GVIEP Coordinator).; "*We always took the time to organize demands considering how they could be beneficial for the residents' learning experience, and how they could bring that along into their practice.*"(Professional I GVIEP).

And reinforced: "*We did not have one preceptor, the preceptor was everyone in the service. We were getting to know the service, always accompanied by a worker, and then we got confident and started doing some things ourselves.*" (Resident IV).

The presence of professionals acting as preceptors facilitates the promotion of teaching and learning moments, bridging the gap between theory and practice in the work reality. Even without the official preceptor figure, encouraging the team to perceive the SUS service as a school, and recognizing its social responsibility in the professional training, provided the residents with a supervised insertion, without stifling the construction of teamwork, individual autonomies, and critical and reflective work.

In this perspective, Bernardo et al. (2020) state that the preceptor plays a strategic role in the teaching process, stimulating the development of critical thinking in residents, motivating them for interdisciplinary actions, and serving as a professional example.

In dealing with COVID-19, the presence of someone acting as a preceptor is even more necessary given the public health emergency posed by an infectious disease that, at the time of the study, was unknown in many therapeutic aspects and presented numerous challenges in terms of surveillance, management, and care organization.

At the COVID Guidelines Center, the reception and insertion of residents occurred at the same time as the implementation and organization of the work process in the team.

The development of the service, the assessment of ongoing actions, and the planning of interventions evolved horizontally, with the participation of coordinators, professors, professionals, and residents.

For De-Carli (2019), adopting SUS as a diverse teaching-learning setting in everyday practices emerges as a powerful initiative to stimulate the transformative nature of training, aiming at critical-reflective actions, and enabling healthcare practices following real-world demands.

This practice scenario was organized with healthcare professionals also acting strategically as preceptors, linking the organization of services with the teamwork process, focused on caring for people who sought the Telehealth Center, as well as working on teaching-learning experiences for residents.

The pandemic context requires the development of new skills and competencies for those involved in the teaching-learning process, such as managing crises, reorganizing workflows and spaces, redistributing roles, and developing protocols (Lima et al., 2021).

The healthcare services needs and the contributions of teaching-service integration

Teaching-service integration materializes via the collaborative efforts involving managers, healthcare professionals, students, and professors. It is based on the actual needs of healthcare services, creating

spaces for learning and changing to enhance healthcare management and delivery.

Given the above, we established two categories based on the service requirements that directly reflect the contributions of the teaching-service integration to analyze this registration unit:

- The service reorganization and professional qualification;
- Spaces for dialogue and sharing.

The service reorganization and professional qualification

The work organization in the actions to combat COVID-19 at the Epidemiological Surveillance Service was structured considering the demands brought forth by the unfolding pandemic. It prioritized a vigilant approach to caring for the population, monitoring, epidemiological investigation, and support to the municipal healthcare teams.

The integration between the GVIEP and the multi-professional residency program during the pandemic provided residents with the opportunity to learn not only about the epidemiological surveillance process of communicable diseases, but also about the reorganization of the service. This also brought about dialogue, reflection, learning, and changes from healthcare service workers.

Oliveira et al. (2020) reflect on the concern in the training of future healthcare professionals and specialists, imposed by the pandemic, with formative challenges in the face of the health crisis scenario. This scenario amplified logistical challenges related to patient and professional safety, redefining institutional and communication workflows. The consequence was the emptying of healthcare services, where academics and professors were inserted, with rare exceptions.

At GVIEP, the efforts involving dialogue, reflection, and work organization with the residents allowed the team to experience dynamic PHE processes, fostering significant learning guided by the needs of the healthcare network services.

Torres et al. (2020) state that the teaching-service integration triggers changes in the work process and transformations in services, grounded in the PHE, which allows the continuous improvement of new knowledge.

There was a need to change the HMSI's profile to address the health emergency, requiring the qualification of its workers for this new phase and the reorganization of workflows and teamwork processes.

The starting point was the qualification of professionals, using the multiplier/matrix support model. All residents took part in the qualification training, and some of them acted as multipliers alongside professionals in their respective sectors.

The initial months of the pandemic were marked by the development of forms, workflows, and protocols aimed at ensuring patient and professional safety, all while maintaining the quality of care provided to individuals who sought the service and were affected by COVID-19.

We observed that the qualification processes were based on the current needs of the service and that the elaboration of workflows and protocols provided professionals and residents with spaces for integration, work process organization, and significant learning.

The PHE activities carried out through the teaching-service integration promote service qualification, enabling knowledge exchange and reflections, as well as providing protagonism for professionals and students in the co-management of everyday problems. Such activities allow academics to build a praxis guided by the weaknesses and potentialities of the care reality (Oliveira et al., 2021).

COVID-19 brought significant changes to the work routine of healthcare services, emphasizing the importance of implementing permanent education actions to strengthen and empower professionals (Ferreira et al., 2020; Santos et al., 2021).

Despite teaching-service integration contributing positively in the qualification process to deal with COVID-19, the absence of professors was a striking factor for the professionals and residents of HMSI and GVIEP since they would have been key figures to develop reflective and problematizing actions.

The interaction with professors, whether in person or virtually, would be an additional support tool for the service in COVID-19 response actions. It would also provide an external perspective on

service organization processes, clinical discussions, and protocol development, strengthening reflections and the construction of praxis.

A relationship beyond teaching-learning is proposed, fostering closer connections between educators, students, and healthcare workers in the healthcare and pedagogical production scenarios. This builds integrative actions to contribute to improving the quality of services and care provided to users (Mello et al., 2018).

The COVID Guidelines Center was established based on the pandemic-related health demands and its implementation always took place considering the necessities indicated by service users and the local epidemiological situation.

The service coordination, along with the coordinators of the residency programs, professors, professionals/preceptors, graduates, and the residents themselves participated in Working Groups (WG). The goal was to discuss relevant pandemic-related topics in real-time and develop protocols for the Telehealth Center and the care network, emphasizing primary care. This facilitated teaching-learning experience, qualification, and service change proposals.

Teaching-service integration was a way to materialize Permanent Health Education in the services, causing reflective movements to reorganize service reorganization and qualify professionals and students. To Feliciano et al. (2020), PHE values and understands that the inclusion of all agents is necessary, ensuring that desires and concerns are expressed and addressed.

The work processes reorganization within the teams and the autonomy of professionals were fundamental aspects to face the pandemic. The use of information and communication technology tools, through teleconsultations, brought healthcare services closer to the population and shed light upon the real situation in the country during the emergency (Daumas et al., 2020).

Spaces for dialogue and sharing.

The existence of various spaces for dialogue and sharing was strongly emphasized in the statements of the research participants. At times, these spaces were prompted by discussions about service organization and work processes, while at other times, they reflected in organic actions in the daily work and healthcare routine.

In Epidemiological Surveillance, the spaces for dialogue, reflection, and exchange of experience stemmed from the discussions of epidemiological investigation cases, the reflection on the usefulness of notification forms/instruments, and the actions conducted in care services.

The rapprochement between the residents and the team, making themselves available for dialogue in the day-to-day work, triggered spaces for sharing and reflection, enabling dynamic learning and collaborative problem-solving.

Practical activities involving the knowledge and experience exchange between residents and healthcare professionals result in humanized and comprehensive care. These activities are vital to develop critical thinking in the face of experienced challenges, to better prepare residents for their professional performance, and to provide a more effective understanding of the field of practice (Amarante et al., 2021).

A prominent aspect that emerged from the statements of the agents interviewed at the HMSI was the importance of spaces for dialoguing, sharing experiences, and discussing cases, both within individual professions and in a multi-professional context. Another remarkable aspect was the improvement in work organization driven by the listening proactivity and technical argumentation with related sectors. In these spaces, residents were able to connect theory with practice, experiencing teamwork in a horizontal, critical, and reflective way, gaining protagonism and autonomy to think and act in healthcare delivery.

The inclusion of residents, who were called upon to participate in daily activities alongside other healthcare workers, allows for contributions to health services and care, such as knowledge exchange and care enhancement. The presence of residents instigates learning processes, fostering teaching-service integration with experiences based on daily work (Mello et al., 2018; Garcia et al., 2014).

In the Telehealth Center, the format of organizing actions to improve the service and the Municipal Health Network led to the ongoing development of

spaces for knowledge exchange, dialogue, listening, reflection, problematization, and meaningful learning. The teaching-service integration stimulated the practice of Permanent Health Education, generating theoretical and practical knowledge, and impacting the proper operation of the service and the quality of care provided to SUS users.

The teaching-service integration acts as a guiding thread in education reorientation processes. The actions carried out were collectively planned and structured while respecting the limitations of those involved, which demonstrates that it is possible to support the combat against the COVID-19 pandemic while teaching and learning from the everyday reality of healthcare services (Souza et al., 2021).

Teaching-service integration as a strategy for Permanent Health Education

We organized the analysis of the participants' perception regarding teaching-service integration as a Permanent Health Education strategy into the following categories:

- Transformation and qualification of practices;
- Learning from reality.

Transformation and qualification of practices

The approximation between education and service provokes reflections on healthcare practices, igniting the desire to transform them by "doing differently," achieved by inserting academic concepts into the realms of professional practice and education (Vendruscolo et al., 2016).

The research subjects point out in their reports that the insertion of the residents in the studied services, with collaborative work alongside local teams, stimulated spaces for dialogue that led to the problematization of healthcare work, thereby transforming and qualifying healthcare practices.

It is possible to verify that there is an understanding of the teaching-service integration as a transformation strategy. This mindset recognizes that the critical perspective of residents towards the service leads to dialogue, reflection, and the problematization of reality, which triggers changes in the work process, ultimately leading to the qualification of workers and students.

The PHE is reaffirmed as a tool for transforming healthcare practices. This occurs within and in relation to the work process itself, which should involve healthcare professionals, management, educational institutions, and users in the search for innovations and solutions to public health challenges and the valorization of life (Esposti et al., 2020).

Teaching-service integration can serve as a strategy to develop and implement Permanent Health Education by inducing service agents to review how they think and do health. This integration enlightens them towards the reorganization of work based on local needs, generating expertise about the daily work of healthcare practices.

The inclusion of residents in the practice field mobilizes elements that positively interfere with professional performance, implementing new actions and practices that affect the service rearrangement. This reciprocity, as it enhances and perfects the residents' professional training, also promotes reflections and positive changes in the healthcare management of other professionals working in that context (Oliveira et al., 2021).

Learning from reality

Albuquerque (2008) states that it is not possible to consider the interface between teaching and work without referring to Permanent Education. The PHE proposal arises from a central challenge, linked to the teaching-service integration purposes: decentralized, democratic, creative, reflective, and trans-disciplinary training, seeking solutions to endured problems (Brasil, 2005).

From the reports of the research participants, we perceived that the presence of residents in the services triggered reflective activities, actions based on dialogue, problematization, and the creation of various learning spaces.

One of the strong points highlighted in the statements of the residents was the unique learning experience facilitated by their placement in services directly involved with COVID-19 care. All residents emphasized how the services built learning spaces by integrating them into the work

process of the teams with collaborative actions. These actions allowed them to experience reality pedagogically, and awakened them to autonomy and professional growth.

The COVID-19 pandemic brought attention to reflections on the education process in Higher Education Institutions (HEIs) in collaboration with healthcare services, focusing on the need for reorientation in working within the Unified Health System (SUS). The realms of education and work, when recognized as dialogical spaces for decision-making, join forces to advance healthcare delivery and the development of science, expanding and qualifying the training of professionals and students (Geremia et al., 2020).

For service professionals, managers, and residency coordinators, teaching-service integration is a strategy for Permanent Health Education. This perspective considers that such integration allows the observation of reality and the dialogue from the problem standpoint. This viewpoint brings the service closer to training spaces by problematizing pedagogical activities focused on problem-solving, and builds spaces toward changes and knowledge production. Some speech excerpts denote: "*The dialogue between the professionals of the sector and the residents happened with opinion exchange, knowledge construction, reality observation, collaboration*" (Professional II HMSI).

They add: "*The educational institution provokes PHE actions because it recognizes that the service generates knowledge, which is perhaps one of the characteristics that we value the most in this teaching-service relationship*" (Coordinator of the RMFC).

For residents, teaching-service integration is a strategy for Permanent Health Education since it enables an active and horizontal insertion in the service, along with the experience of reality and participation in reflective spaces for knowledge and experience exchange. Its goal is to make reality better, as well as to produce knowledge and professional growth, as stated by another interviewee:

> *The residency scenario in which I learned the most, during these 2 years, was this one. It was a great learning opportunity within the service itself, experiencing the routine of this service, in this pandemic context, was pedagogically enriching, I think that in none of the years I studied, or worked, have I ever had this experience.* (Resident IV).

According to Neves (2021), professional training should occur from the insertion in diversified learning scenarios and it should happen to expand knowledge to enter the real world of practices.

The approach toward the research participants allowed us to further understand how the integration of education and service enables learning from reality. In this construction and expansion of understandings, it is observed that students/residents, workers, and managers benefit from the teaching-service integration. Education here, provided from the articulation between theory and practice, led to the perception that PHE is necessary for the production of knowledge in healthcare work.

Final considerations

We drew the elements that support the conclusive arguments from the material collected during the interviews and the focus group, having the outlined objectives as references. The study allowed us to identify the adversities that occurred during the agreement period for the practice scenarios at the Healthcare Network in João Pessoa, in the state of Paraíba, during the pandemic. The services had to be reorganized to address the COVID-19 pandemic, and the residents were inserted in places that required support. At the same time, the challenge regarding the Telehealth Center was the implementation of a completely new service.

Teaching-service integration contributed to the qualification process of workers and students when facing COVID-19. These contributions and the relationship with the demands of the services assessed here occurred due to the qualification efforts of professionals and residents; actions to create protocols, files, and forms; and discussions of single- and multi-professional cases. These movements were dynamic, guided by the urgencies indicated by the services, resulting in spaces for collaboration, knowledge exchange, teaching-learning processes, and problem-solving.

We observed that teaching-service integration is a powerful strategy for Permanent Education in Health, considering the articulation between the service agents and the educational institutions. This incites the development of a critical-reflective look at the service, correlated with the work routine and the day-to-day life in the territories. Thus, it develops spaces for listening, support between professionals and students, learning, evolution, and growth.

A limitation of the study is the non-inclusion of professors from both residency programs as participants in this research, which would certainly broaden the view on the object under study. We recommend that these individuals be included in the sample in future studies.

Until the completion of this research, no similar studies were found to make direct comparisons in the analyses, neither from a methodological point of view nor in the COVID-19 context.

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Authors' contribution

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