

Formative experience using the electronic portfolio as a teaching-learning methodology

Experiência formativa com uso do portfólio eletrônico como metodologia de ensino-aprendizagem

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ABSTRACT The Primary Care Qualification Program aims to strengthen Primary Health Care in the Federal District by developing proactive health actions from the perspective of workers, managers and representatives of users of the Unified Health System. In 2022, the Specialization Course in Family Health Management began, using the electronic portfolio (e-Portfolio) as a proactive, reflective and dialogical methodology. Within each module, interventions were proposed to deal with everyday challenges. The construction of the e-Portfolio resulted in six interventions focused on the management of the Family Health Strategy and aligned with the qualification of user care. The use of this technological resource generated positive results not only for management, but also for staff, users and the community. In addition, it facilitated the feedback process in the training journey, with the possibility of shared construction, in which the teacher-tutor accompanies the writing, the reflections, engages with supporting theoretical content, enhancing the learning process and changes in daily practices.

KEYWORDS Health management. Biomedical technology. Educational technology.

RESUMO O Programa de Qualificação em Atenção Primária tem como objetivo fortalecer a Atenção Primária à Saúde no Distrito Federal, desenvolvendo ações de saúde proativas a partir da perspectiva de trabalhadores, gestores e representantes dos usuários do Sistema Único de Saúde. Em 2022, foi iniciado o Curso de Especialização em Gestão da Saúde da Família, em que se utilizou o portfólio eletrônico (e-Portfólio) como uma metodologia proativa, reflexiva e dialógica. Dentro de cada módulo, foram propostas intervenções para lidar com desafios cotidianos. A construção do e-Portfólio resultou em seis intervenções enfocadas na gestão da Estratégia Saúde da Família e alinhadas à qualificação do atendimento aos usuários. O uso desse recurso tecnológico gerou resultados positivos não apenas para a gestão, mas também para os funcionários, usuários e a comunidade. Além disso, facilitou o processo de feedback na jornada formativa, com a possibilidade de construção compartilhada, em que o professor-tutor acompanha a escrita, as reflexões, engaja-se com conteúdo teórico de apoio, aprimorando o processo de aprendizado e as mudanças nas práticas diárias.

PALAVRAS-CHAVE Gestão em saúde. Tecnologia biomédica. Tecnologia educacional.

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Introduction

Currently, in the field of education and professional training, there is a search for teaching and learning methodologies and technologies that keep up with the growing technological development and the change in the way we learn, thus promoting contextualized learning that motivates students to build their own learning process¹. Innovations in the teaching-learning process, especially enhanced after the pandemic context experienced as a result of COVID-19, bring many contributions and criticisms regarding the quality and effectiveness of pedagogical processes, distance education, and the vulnerability of the traditional education system.

Active methodologies focus on student learning, involving, motivating and dialoguing with students. In other words, knowledge is constructed simultaneously, associating theory and critical practice based on real and current challenges and problems. Among the methods and tools, we highlight the reflective portfolio for enhancing the learning process, which allows for a critical-reflective analysis that is based on a constructivist conception of learning, emphasizing the active role of students in the construction of their knowledge^{2,3}.

The reflective portfolio, therefore, promotes the development of self-assessment and self-correction skills, encourages creativity, and develops responsibility, and is a facilitator when combined with the teaching culture, also in the health area⁴, as it allows the student to document and monitor learning, develop a coherent image of the experience, and improve self-understanding³. In this context, there are several portfolio formats, such as individual and collective, textual or image-based, as well as electronic (also called e-Portfolio or digital portfolio).

Within the scope of the development of Educational Technologies in Health (TES) – a set of knowledge and resources that allow planning, monitoring, executing, facilitating and subsidizing the learning process⁵ – and

the National Policy for Science, Technology and Innovation in Health (PNCTIS), an integral part of the National Health Policy, in the Unified Health System (SUS), there is a political and ethical commitment to the production and appropriation of technology that contributes to reducing social inequalities in health, ensuring the fundamental principles of SUS⁶. Thus, the e-Portfolio presents itself as a powerful tool that allows interaction between teaching and extension, as recommended in the National Policy for Continuing Education in Health (PNEPS)⁷.

In this sense, this experience report is justified, whose objective is to describe and discuss the experience of using the e-Portfolio as an educational technology resource in health, being part of the teaching-learning process, made possible within the Specialization Course in Family Health Management (CEGESF). This is a training proposal that is part of the State Program for Qualification of Primary Health Care (Qualis-APS), created by the State Department of Health of the Federal District (SES-DF) through Ordinance No. 39, of January 23, 2019, and reformulated by Ordinance No. 131, of April 14, 2023, which aims to strengthen PHC in the DF, developing health actions actively and from the point of view of workers, managers and representatives of SUS users in the DF through the agreement of goals⁸. Among the objectives of this program is the development of “scientific production on the program and its results, as well as monitoring and evaluation in the PHC of the Federal District”⁸, in addition to operationalizing the guidelines regarding “continuing education, with the provision of innovative educational actions for PHC professionals and managers, concerning the ESF model”⁸.

Methodology

In 2022, CEGESF was launched. All managers and supervisors of the Basic Health Units (UBS) in the five health regions of the Federal

District were invited to enroll in the course, which began in April 2022 and ended in August 2023, lasting 1 year and 4 months. The course was organized with a workload of 300 hours of mandatory subjects and 60 hours of electives (short courses, workshops, seminars and events), designed in the Distance Education (DE) modality, with synchronous (live) meetings, asynchronous activities (online without a specific time) in the Virtual Learning Environment (VLE) and with face-to-face meetings.

The managers selected to participate in CEGESF were divided into learning communities, with ten students and one responsible tutor in each, according to the health regions in which they worked (west, north, east, south, etc.). In this way, the intention was that the production of knowledge would start from issues closer to that collective. The construction of the e-Portfolio was done individually, however, there was mutual collaboration between the students, making it possible to share experiences that would be applied in the individual scope of work of each manager.

Most of the theory was taught through the VLE, with problematization and development of interventions in face-to-face classes. To build the e-Portfolio, it was necessary to have a Gmail account. The platform used to build the e-Portfolio was Google Workspace – Padlet, as it is an intuitive tool, easy to access and view, and free. The initial layout was developed by the design/technology department of the Oswaldo Cruz Foundation in Brasília (Fiocruz Brasília). However, the platform allowed for the possibility of customizing the e-Portfolio⁹ to meet the needs, creativity, and technical skills of each CEGESF student.

The standard e-Portfolio layout contained the following mandatory fields for free creation: 1) About me – space in which each student could enter professional and personal information; 2) Management Intervention – specific space for reporting intervention actions; 3) Management Experiences – space in which the student could enter his/her experience in management; 4) Qualis-APS Program – information about the Program; and 5) Library (*figure 1*).

Figure 1. Standard layout model of the e-Portfolio of the Specialization Course in Family Health Management at Fiocruz Brasília, 2022



Source: CEGESF e-Portfolio Manual¹¹.

Initially, each student had the task of proposing an intervention in each Learning Unit, implementing it and making a

critical-reflective analysis of the activity developed in the context of the UBS according to the theoretical framework under study. Thus,

at the end of the course, there would be 12 recorded experiences.

However, in the fourth intervention, some methodological changes were proposed, reducing the number of interventions from 12 to 6, increasing the implementation time and critical-reflective analysis of the actions

implemented. The interventions were described and shared in the e-Portfolios. Since it was in the public domain, tutors could access the page through a link and monitor the information that was entered to continue with the evaluation (figure 2).

Figure 2. Public repository of e-Portfolios of the Specialization Course in Family Health Management at Fiocruz Brasília, 2022



Source: e-Portfólio⁹.

To develop the actions, the students started from guiding questions contained in the CEGESF student manual, bringing aspects related to the place of the intervention, work problems, objectives and expected results, theoretical framework used, actors involved and schedule for carrying out the intervention¹⁰.

The construction of the e-Portfolio was continuous throughout the course modules as the theory was taught, with the aim of associating it with practice. To begin its development, the student had to identify a problem in his/her UBS and, based on the theoretical content experienced, propose an intervention. The objective of the intervention was directly related to proposing improvements to the health service and the implementation of technologies, as well as procedures that aimed, consequently, to improve user satisfaction and work processes.

For each intervention action included in the e-Portfolio, in addition to answering the guiding questions of each theoretical module, it was necessary to update it with the results obtained. To illustrate the actions, visual resources such as images, videos, graphs or other elements could be added. Finally, the e-Portfolio could be used as a business card for the student to show their progress and professional growth in a clear, organized and attractive way.

The evaluation of the e-Portfolio should follow the following criteria: engagement and compliance with deadlines; consistent, clear and objective writing; use of scientific literature and data from the territory; definition of objectives and goals for the intervention; originality, creativity and innovation of the proposal. In view of this, in each action carried out, the student should make it clear in his/her

writing whether the objectives were achieved, describe the facilities and difficulties of implementation, whether there were adjustments throughout the process, what were the effects of the action on the work process and whether there was a development for other actions¹¹. At the end of the course, all the content developed in the e-Portfolio served as a subsidy for the preparation of the capstone project.

The training experience using the e-portfolio

Six interventions were carried out within the scope of emerging daily issues in the context of the management of the Family Health Strategy (ESF) and in dialogue with the qualification of care for users and the community assigned to the UBS territory (*table 1*).

Table 1. Result of intervention actions in the territory carried out in a UBS in the Specialization Course in Family Health Management at Fiocruz Brasília, 2022

Intervention	
1	Guidance for teams regarding the correct entry of home visits in the e-SUS AB system: a visual resource was created with a step-by-step guide to the correct entry of home visits.
2	Structuring care for smokers at the Basic Health Unit No. 11 (UBS 11) in Ceilândia: expanding access for smokers that did not exist in the unit.
3	Developing a Permanent Health Education action at UBS 11 in Ceilândia: establishing a permanent education circle, called Circle of Knowledges, with support from the Preceptorship of the Family and Community Medicine Residency Program.
4	Correction of inconsistencies in the records of the Family Health Strategy Teams at UBS 11 in Ceilândia: carried out with the aim of increasing the number of valid records at the UBS.
5	Management of the agendas of the Oral Health Teams at UBS 11 in Ceilândia: aimed to organize and expand access to dental care at the unit.
6	Referral flow of pregnant women from UBS 11 in Ceilândia: carried out the survey and monitoring of pregnant women for high risk and intermediate risk.

Source: Own elaboration.

Among the aspects to be highlighted in this experience, when comparing the first intervention with the last ones, are the gradualness of the learning process and the better development in the critical-reflective analysis of the implemented actions. Initially, the proposals were simpler and less structured, partly due to a lack of knowledge of the learning methodology, the platform and the function of the e-Portfolio. Later, we understood that, by correlating the interventions with the subjects studied in the modules and by using visual resources, images, technical notes, graphs and tables, we would have more robust, purposeful actions with greater scope for analyzing their impacts on the daily life of the PHC.

Regarding the use of the e-Portfolio, it was observed that it was a potential learning tool by allowing a critical reflection of what was being constructed, while at the same time, when developing the intervention, it was possible to critically analyze it and monitor its evolution and development. In this learning process, the e-Portfolio provided the opportunity to critically reflect on clinical practice, helping in the development of critical thinking skills and in the integration of theory and practice.

Another aspect observed was the importance of the e-Portfolio in active learning, as it allows the recording of evidence, such as technical notes, reports, decrees and academic papers, in order to support decision-making

for the implementation of the intervention. Continuous and formative assessment, based on regular and individualized feedback, made it possible to identify strengths and weaknesses for improving professional practice. These findings are consistent with a study that reports that electronic portfolios focus mainly on awareness of learning and skills development, as well as the ability to assess strengths and weaknesses and reflect on personal progress¹².

When we started the course, we were coming out of the most critical period of the COVID-19 pandemic. Therefore, at times, the demands of reorganizing services interfered with our proposals for intervention actions, as in the case of intervention action 3, which aimed to develop a proposal for continuing health education at UBS 11 in Ceilândia. The idea was to establish a permanent education circle, called Circle of Knowledges, with the support of the Preceptorship of the Family and Community Medicine Residency Program; however, due to the numerous activities inherent to the program, only one meeting was held, without continuity.

Recording these experiences in the e-Portfolio and dealing with the frustration of the non-continued intervention were critical elements that emerged regarding the work process in family health, with the constant critical situations that demand the attention of the manager and family health teams, as in the case of the COVID-19 pandemic itself, the dengue outbreak and the monkeypox outbreak (April-July 2022). This highlights a limitation of the use of the e-Portfolio in terms of work overload. Creating and maintaining a portfolio required significant time and effort on the part of students and tutors, which had to be aligned with the workload of synchronous and asynchronous activities, face-to-face meetings, working hours and the time to implement the intervention.

The second intervention recorded in the e-Portfolio was based on the need to expand care for smokers in the region. Therefore, it

was proposed to structure care for smokers at UBS 11 in Ceilândia. The unit in question does not have a multidisciplinary team (eMulti) to support the implementation of the intervention, so many efforts were required. Among them, the mobilization of professionals who, at some point, had completed training to work in the stop smoking program and the reorganization of schedules in order to have time available for the activity to the detriment of other services. Furthermore, the expected time frame to start care for smokers was approximately 60-90 days, but the first meeting took place only one year later.

Throughout the process of structuring the service for smokers, we faced a shortage of human resources, professional training, the process of registering and qualifying the unit, and reorganizing the schedules to meet spontaneous and scheduled demand. These challenges and obstacles were recorded in the e-Portfolio, as well as the entire structuring of the work process, which can serve as a subsidy for other units in the implementation of groups.

In general, there was greater interaction among students, since there was the possibility of discussing individual interventions in group sessions, sharing experiences and suggesting improvements or ways to overcome adversities, which were later developed and written within the platform. Students had free access to the portfolios of all students in the course, and could take ideas from others for their own interventions in their work scenarios. We observed that work processes change according to local management, emphasizing the importance of Standard Operating Procedures (SOP) within the health area. A similar study carried out in the Federal District indicated that this type of methodology strengthened the rapport among students, being a more flexible assessment method, transcending the traditional teaching model¹³.

The e-Portfolio served as a notebook-space to support the recording of the completed stages and the difficulties that emerged during

the implementation of the intervention. The dynamism of this type of educational technology allowed us to look at the entire work process in a critical-reflexive manner, allowing us to move away from the demand-response logic. From this perspective, we learned to deal with adversities and to recognize the multi-factorial nature of the actions and demands of a PHC health service, which implies the development of the ability to create other action and intervention strategies for daily practices.

As reported in literature studies, we observed that one of the advantages of the e-Portfolio is to provide students with immediate feedback after corrections made by tutors, allowing for the rapid identification of weaknesses in the learning process, and also providing the possibility of interaction and simultaneous assessment by more than one teacher¹⁴.

Another analytical aspect of the use of the e-Portfolio in this training process and as a TES is in relation to the roles of the ESF manager and supervisor. In the latest edition of the National Primary Care Policy (PNAB), in 2017, the importance of the role of the UBS manager in qualifying the work process is emphasized, reiterating that the election of a professional for this position must consider

[...] professional criteria and not merely political-electoral ones. Another addition that refers to management is the constant mention of the need to adapt the design of Primary Care to the different realities of each location and possibilities of adaptation through the municipal manager, with autonomy in his choices¹⁵.

As a team supervisor, building the e-Portfolio of the proposed interventions also allowed me to look at the demands related to meeting the goals and understanding the indicators of the *Previne Brasil* Program, which are very present in the daily work routine. As managers, we sometimes play the role of pressuring PHC professionals to meet the goals in order to present concise data to the SES. From

this perspective of self-analysis of our work process, it was possible to propose training and guidance actions related to this aspect of production, the quantity of the work process, in addition to solving some critical knots in the teams' work process and being closer to the teams to support them in their daily tasks. By structuring and implementing an action, we were able to reflect on the real difficulties and choose pertinent and more effective strategies to improve the work process.

Final considerations

The process of building the e-Portfolio as a facilitator of knowledge production, that is, as a teaching-learning tool, favored the implementation of practical – and, for the most part, simple – interventions in the management experience.

There are challenges regarding the use of e-Portfolios, including curricular integration. Effectively integrating the use of portfolios into the health education curriculum requires a careful review of learning objectives and close collaboration between teachers, tutors, professionals working in UBS and users. Therefore, for its use, the purpose of an electronic portfolio in the learning process must be clearly established, so that this tool can support formative and summative assessment.

It is known that managers face great challenges with all the movements and changes that occur daily in PHC. Demands from both boards of directors and ESF professionals and users could be formalized and put into action in a more structured and dynamic way, facilitating the work process. The possibility of selecting an issue, thinking about an intervention proposal, putting it into practice and reflecting on the process allowed us to expand our tools for daily work as managers, as well as give visibility to issues that were sometimes masked in the many demands that we face.

Carrying out an intervention with scientific basis and using a technological resource generated positive results not only for management, but also for employees, users and the community in a general context. The e-Portfolio facilitated the process of continuous feedback in the training process, bringing horizontality to the relationship between students and educators. The possibility of a shared construction, in which the teacher-tutor monitors the writing, the reflections, points out the strengths, presents possible reflective paths, dialogues with the supporting theoretical content and shares other references, qualifies the learning process and the changes in the daily practices. Having a learning community also favored interaction between learners, sharing ideas, collaborating

on projects and providing constructive feedback to each other.

Collaborators

Silva TGA (0009-0000-0902-8753)* contributed to the conception of the work; collection, analysis, and interpretation of data; writing of the article; and final approval of the version to be published. Almeida IS (0000-0003-0929-8299)* contributed to the conception of the work; analysis and interpretation of data; writing of the article; critical review; and final approval of the version to be published. Sousa DL (0000-0002-6140-694X)* contributed to the writing of the article, critical review; and final approval of the version to be published. ■

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