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Evaluation of continuing health education initiatives: learning, knowledge transfer, and professional development

Avaliação das ações de educação permanente em saúde: aprendizagem, transferência do conhecimento e qualificação profissional

Evaluación de las acciones de educación permanente en salud: aprendizaje, transferencia del conocimiento y cualificación profesional

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Abstract:

Permanent Health Education (PHE) is a strategy for improving healthcare work processes, based on the integration of learning, critical reflection, and the transformation of professional practices. However, evaluating its effectiveness requires going beyond assessing participants' satisfaction and immediate learning outcomes following educational activities, also considering

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the retention and transfer of knowledge to everyday healthcare services. This article aims to analyze, through bibliographic research, the foundations and assessment strategies of Permanent Health Education initiatives, considering the processes of learning, knowledge retention and transfer to professional practice, as well as institutional factors that influence the improvement of healthcare work processes. This is a qualitative study of a bibliographic nature, based on scientific publications identified through Google Scholar and SciELO databases. The authors are members of the Research Ethics and Permanent Health Education Committee of the Ismael Alexandrino Pinto State Polyclinic, located in the municipality of São Luís de Montes Belos, Goiás, Brazil. This institutional affiliation brings their professional practice closer to the topic addressed, without constituting the empirical field of the investigation. The discussion results indicate that learning is a necessary, but insufficient, step to ensure changes in professional practices. The incorporation of knowledge into work depends on the interaction among individual factors, pedagogical strategies, and organizational conditions, including institutional support, opportunities for application, and monitoring of results. The importance of assessment strategies that address different stages of the educational process is also highlighted, making it possible to verify not only the knowledge acquired but also its application in professional activities. It is concluded that the evaluation of the effectiveness of PHE initiatives should be continuous and aligned with the needs of healthcare services and workers, taking into account the institutional conditions required to transform practices and improve healthcare delivery.

Keywords:
Permanent Health Education; Evaluation; Learning; Knowledge Transfer; Professional Qualification.

Resumo:
A Educação Permanente em Saúde (EPS) constitui uma estratégia de qualificação dos processos de trabalho em saúde, fundamentada na articulação entre aprendizagem, reflexão crítica e transformação das práticas profissionais. A avaliação de sua eficácia, entretanto, exige ultrapassar a verificação da satisfação dos participantes e da aprendizagem imediatamente após as atividades educativas, considerando também a retenção e a transferência dos conhecimentos para o cotidiano dos serviços. Este artigo tem como objetivo analisar, por meio de pesquisa bibliográfica, os fundamentos e as estratégias de avaliação das ações de Educação Permanente em Saúde, considerando os processos de aprendizagem, retenção e transferência do conhecimento para a prática profissional, bem como os fatores institucionais que interferem na qualificação dos processos de trabalho em saúde. Trata-se de uma pesquisa qualitativa, de natureza bibliográfica, desenvolvida a partir de publicações científicas localizadas nas bases Google Acadêmico e SciELO. As autoras integram a Comissão de Ética em Pesquisa e Educação Permanente da Policlínica Estadual Ismael Alexandrino Pinto, localizada no município de São Luís de Montes Belos, Goiás, inserção institucional que aproxima sua atuação profissional da temática abordada, sem constituir campo empírico da investigação. Os resultados da discussão evidenciam que a aprendizagem é uma etapa necessária, mas não suficiente para assegurar mudanças nas práticas profissionais. A incorporação dos conhecimentos ao trabalho depende da articulação entre fatores individuais, estratégias pedagógicas e condições organizacionais, incluindo apoio institucional, oportunidades de aplicação e acompanhamento dos resultados. Destaca-se, ainda, a importância de estratégias avaliativas que contemplem diferentes momentos do processo educativo, permitindo verificar não apenas o conhecimento adquirido, mas também sua utilização nas atividades profissionais. Conclui-se que a avaliação da eficácia das ações de EPS deve ser contínua e articulada às

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necessidades dos serviços e dos trabalhadores, considerando as condições institucionais necessárias à transformação das práticas e à qualificação da atenção à saúde.

Palavras-chave:
Educação Permanente em Saúde; Avaliação; Aprendizagem; Transferência do Conhecimento; Qualificação Profissional.

Resumen:
La Educación Permanente en Salud (EPS) constituye una estrategia de cualificación de los procesos de trabajo en salud, fundamentada en la articulación entre aprendizaje, reflexión crítica y transformación de las prácticas profesionales. Sin embargo, la evaluación de su eficacia exige superar la comprobación de la satisfacción de los participantes y del aprendizaje inmediatamente después de las actividades educativas, considerando también la retención y la transferencia de los conocimientos a la práctica cotidiana de los servicios. Este artículo tiene como objetivo analizar, mediante una investigación bibliográfica, los fundamentos y las estrategias de evaluación de las acciones de Educación Permanente en Salud, considerando los procesos de aprendizaje, retención y transferencia del conocimiento a la práctica profesional, así como los factores institucionales que interfieren en la cualificación de los procesos de trabajo en salud. Se trata de una investigación cualitativa de carácter bibliográfico, desarrollada a partir de publicaciones científicas localizadas en las bases Google Académico y SciELO. Las autoras integran la Comisión de Ética en Investigación y Educación Permanente de la Policlínica Estatal Ismael Alexandrino Pinto, ubicada en el municipio de São Luís de Montes Belos, Goiás, una vinculación institucional que aproxima su actuación profesional a la temática abordada, sin constituir el campo empírico de la investigación. Los resultados de la discusión evidencian que el aprendizaje es una etapa necesaria, pero insuficiente para garantizar cambios en las prácticas profesionales. La incorporación de los conocimientos al trabajo depende de la articulación entre factores individuales, estrategias pedagógicas y condiciones organizativas, incluidos el apoyo institucional, las oportunidades de aplicación y el seguimiento de los resultados. Se destaca, además, la importancia de estrategias evaluativas que contemplen diferentes momentos del proceso educativo, permitiendo comprobar no solo el conocimiento adquirido, sino también su utilización en las actividades profesionales. Se concluye que la evaluación de la eficacia de las acciones de EPS debe ser continua y estar articulada con las necesidades de los servicios y de los trabajadores, considerando las condiciones institucionales necesarias para la transformación de las prácticas y la cualificación de la atención a la salud.

Palabras clave:
Educación Permanente en Salud; Evaluación; Aprendizaje; Transferencia del Conocimiento; Cualificación Profesional.

1. Introduction

Within the framework of the Unified Health System (SUS), Permanent Health Education (PHE) is a policy and educational strategy aimed at problematizing work processes, identifying service needs and critical reflection on professional practices. Based on the link between work and education, PHE encompasses the everyday life of services as a space for learning, knowledge generation and building possibilities for transforming health practices (Brasil, 2009).

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In the field of training of health workers, different forms of education coexist and have specific objectives, strategies and forms of organisation. In-service education relates to learning linked to activities carried out in the workplace; continuing education includes initiatives to update and deepen knowledge; while Permanent Health Education starts from the problematization of the specific needs of services and work processes, seeking to articulate learning, critical reflection and transformation of professional practices (Silva; Duarte, 2015).

The acquisition of knowledge during an educational activity does not necessarily ensure its retention or application in the professional context. Baldwin and Ford (1988), in analysing the process of training transfer, point out that learning outcomes are influenced by the characteristics of the participants, the conditions of development of the training activity and the organisational environment. Thus, the possibility of incorporating acquired knowledge into professional practice depends not only on the quality of the educational work but also on the institutional conditions which favour its application and maintenance over time.

The assessment of learning should be planned in accordance with the pedagogical objectives set for each educational action, taking into account the knowledge, skills and attitudes that are intended to be developed in the professionals. In this sense, the evaluation tools need to be selected according to the nature of the contents worked and the expected skills, and may involve testing, questionnaires, case studies, simulations and observation of practical activities. For Scallon (2015), the assessment should consider an individual's ability to mobilize knowledge and skills to respond to contextual situations, going beyond simply reproducing information.

However, verification of learning immediately after a training does not make it possible to say that the knowledge acquired will be maintained or incorporated into professional life. It is necessary to distinguish the initial acquisition of knowledge from its retention over time and its transfer to the working environment. Baldwin and Ford (1988) point out that the transfer of training depends on different factors, including the characteristics of the participants, the strategies used in training and the conditions of the organisational environment. Thus, even when the practitioner demonstrates that he has learned certain content, the absence of institutional support and opportunities to apply the knowledge can jeopardise its use in practice.

This understanding approximates Kirkpatrick's evaluation model, which proposes four levels of analysis: reaction, learning, behavior and outcomes. The reaction refers to participants' perception of the educational activity; learning verifies the acquisition of knowledge, skills and attitudes; behaviour examines the application of what has been learned in the work

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environment; and results consider the effects produced in relation to the objectives set for training (Kirkpatrick, 1976 apud Mendes, 2015). While these levels help to organize the evaluation process, it is important to understand that participants' satisfaction does not prove learning, nor does the acquisition of knowledge necessarily ensure their transfer to professional practice.

Therefore, the evaluation of the actions of Permanent Health Education should take into account different times and dimensions, combining the verification of initial learning, the monitoring of knowledge retention and the analysis of its application in the daily life of the services. The evaluation of results should also take into account the institutional conditions which favour or hinder the incorporation of knowledge into professional practice. This articulation allows not only to identify the results achieved by educational activities, but also the needs for improvement and the interventions needed to strengthen health work processes.

Assessment of Permanent Health Education actions requires procedures capable of accompanying different dimensions of the education process. The verification of learning immediately after a training activity constitutes only one stage of this assessment, since it does not allow the continuation of the knowledge acquired or its incorporation into professional practice to be identified in isolation. It is therefore necessary to articulate the analysis of the needs that have given rise to educational action, the objectives set, the learning outcomes and the institutional conditions that favour or limit the transfer of knowledge into the everyday life of services.

In view of these considerations, the following question arises as a research problem: how can actions in Permanent Health Education be assessed beyond immediate learning, taking into account the retention of knowledge acquired, its transfer to professional practice and the results produced in health work processes? The question arises from the understanding that the participation of professionals in educational activities and the acquisition of new knowledge does not in itself ensure their integration into the daily life of services. It is therefore necessary to understand the elements that interfere with the continuity of learning and the possibilities of applying knowledge, taking into account both the aspects relating to participants and pedagogical strategies as well as the institutional working conditions.

The discussion of this topic is also motivated by the reality of health services, especially the need to strengthen educational processes that contribute to professional qualification and the organisation of teamwork. In this regard, the State Polyclinic Ismael Alexandrino Pinto, located in the municipality of São Luís de Montes Belos, in the state of Goiás, is a point of

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reference. However, it is stressed that the Polyclinic does not represent the field of empirical research in this study, since the research is of a bibliographic nature and is based on the analysis of scientific production on the subject. Its purpose is to identify the source of the problem and to highlight the relevance of the discussion to health services.

In view of the problem presented, this study has the general objective of analysing, by means of bibliographic research, the fundamentals and strategies for evaluating the actions of Permanent Health Education, taking into account the processes of learning, retention and transfer of knowledge into professional practice, as well as the institutional factors that interfere with the qualification of health work processes.

2. Method

It is a qualitative, bibliographical research project designed to analyse the scientific output of the evaluation of the actions of Permanent Health Education, with an emphasis on the processes of learning, retention and transfer of knowledge into professional practice.

Writing

The bibliographic search was carried out in the Google Academic and SciELO (Scientific Electronic Library Online) information sources, for the period from 1 September to 30 October 2026, using the descriptors – Permanent Health Education –, – Learning Assessment –, – Efficacy –, – Knowledge Transfer –, – Learning – and – Health Education –, combined through the Boolean and AND OR operators, according to the search strategies adopted in each source.

Studies published between 1976 and 2026 in the Portuguese and English languages, which presented theoretical contributions or research results related to Permanent Health Education, learning assessment, knowledge retention, learning transfer and professional qualification, were considered.

The selection process included the identification of the publications, the reading of the titles and abstracts and, subsequently, the full reading of the papers considered relevant to the subject. The selected materials were qualitatively examined and organised into thematic categories related to the research objectives.

The analysis sought to identify convergences, divergences and contributions from the selected studies, taking into account the relationships between learning, retention of knowledge, transfer to professional practice and institutional factors that interfere with the results of educational activities.

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3. Theoretical framework

The theoretical framework of this study forms the conceptual basis for the understanding and analysis of the subject under consideration, bringing together different theoretical perspectives that allow us to understand Permanent Health Education (HSE), its educational processes and the elements related to the assessment of its efficacy. From the articulation between the selected concepts and theoretical contributions, the aim is to understand the relationship between educational actions, the construction and consolidation of learning, the incorporation of knowledge into professional life and its possible repercussions on health work processes. In this perspective, the theoretical reference does not restrict itself to the presentation of concepts, but provides support for the critical interpretation of the phenomenon studied and for the analysis of research results.

The reference axis is organized into five articulated axes. Point 3.1, Permanent Education, addresses the fundamentals of PHE and its relationship to work processes, taking into account learning built on the concrete needs of services and reflection on professional practices. Section 3.2 Training, learning and professional development discusses the relationship between educational processes and the development of knowledge, skills and competences necessary for professional practice.

Next, Section 3.3 Assessment of learning and efficacy of educational actions addresses the importance of evaluating the outcomes of educational actions beyond immediate learning, considering their relationship to the proposed objectives and needs identified in the work context. Section 3.4, Transfer of knowledge into professional practice, discusses the incorporation of knowledge and learning into everyday work, while Section 3.5, Vocational Qualification and Implications in Health Practice, addresses the contributions of educational actions to professional improvement and to the transformation of health work processes. The combination of these axes makes it possible to base the analysis of the efficacy of Permanent Health Education actions on a procedural perspective, taking into account not only the learning acquired, but also its persistence, application and impact on professional practice.

3.1 Permanent Health Education

Permanent Health Education (PHE) is a policy and educational strategy aimed at transforming professional practices and the organisation of health services, with work as a space for critical learning and reflection. Unlike educational proposals focusing exclusively on the

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transmission of content or the technical updating of workers, PHE addresses specific problems in the everyday life of services by linking theoretical knowledge to healthcare needs and working conditions. Its purpose is not limited to the individual qualification of practitioners but includes the collective construction of responses to the challenges facing the organisation of the Unified Health System (SUS).

In this view, the educational process should promote the problematization of established practices, enabling workers to analyse their actions, identify difficulties and build alternatives to tackle problems in services. Learning therefore takes place in the relationship between work, knowledge and social reality, requiring spaces for dialogue, participation and collective reflection. This understanding removes the notion that health education is limited to one-off courses, lectures or training, since it presupposes continuity and articulation with the actual needs of work processes.

A key contribution to this understanding is made by Ceccim and Feuerwerker (2004), through the so-called quadrilateral of health training, which is the link between education, management, attention and social control. The authors propose that the training of healthcare professionals should be understood from the integration of these four dimensions, overcoming fragmented approaches that attribute solely to educational institutions responsibility for the qualification of workers. The Quadrillator expresses the need to build training processes linked to the reality of services, health policies and the participation of the different stakeholders involved in the production of care.

The dimension of education relates to the production and socialization of knowledge, involving educational institutions, teachers, students and workers. In the context of the PHE, education needs to interconnect with the problems identified in the services so that pedagogical content and strategies are not defined in a disjointed manner from the professional reality. Workers' participation in identifying educational needs is essential because it allows for recognition of difficulties, knowledge gaps and demands arising from activities carried out on a daily basis. Training activities can thus be organised on the basis of specific situations, thus promoting meaningful and vocational learning.

The management dimension comprises the responsibility of managers in organising and strengthening educational processes. Their participation should not be restricted to authorisation or the provision of training, but should involve the creation of institutional conditions for learning to take place and be incorporated into work. This includes making resources available, organising schedules, encouraging team participation, promoting workers

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and monitoring proposed changes. Lack of management support, overload of activities and structural constraints can jeopardise the continuity of educational activities and make it difficult to apply the knowledge acquired. Management thus plays a strategic role in linking training, institutional planning and transformation of work processes.

The dimension of attention establishes the relationship between vocational training and the health needs of the population. PHE actions shall take into account the needs identified in customer service, the difficulties faced by teams and the challenges related to the integrity and quality of care. This means that learning needs to have an impact on the organisation of care practices, contributing to improved reception, communication between professionals, continuity of care and the link between the different points of the care network. Training can therefore be assessed not only by the knowledge acquired individually, but also by its contribution to the qualification of the attention offered.

The dimension of social control, in turn, highlights the participation of users and their representatives in identifying health needs and discussing services offered. Listening to users, participating in health councils and engaging in dialogue with social movements make it possible to recognize problems that are not always perceived exclusively by workers or management. This participation contributes to bringing educational processes closer to the real needs of the population, strengthening the democratic construction of health policies. In this respect, PHE should also consider user experiences as relevant elements for the analysis and transformation of institutional practices.

The link between education, management, care and social control demonstrates that Permanent Health Education is not an isolated responsibility of a particular sector or profession. It is a collective process which requires co-responsibility between workers, managers, training institutions and users. When these dimensions are developed in an integrated way, the possibilities for identifying problems, planning interventions, monitoring changes and assessing the effects of educational actions on health services are expanded.

This articulation also has direct implications for the evaluation of PHE. The analysis of results should not be limited to the number of trainings carried out, the number of participants or the satisfaction of professionals. It is necessary to investigate whether educational needs have been identified with worker participation, whether management has provided conditions for learning, whether the knowledge acquired has contributed to changing care practices and whether the needs identified by users and social control spaces have been taken into account.

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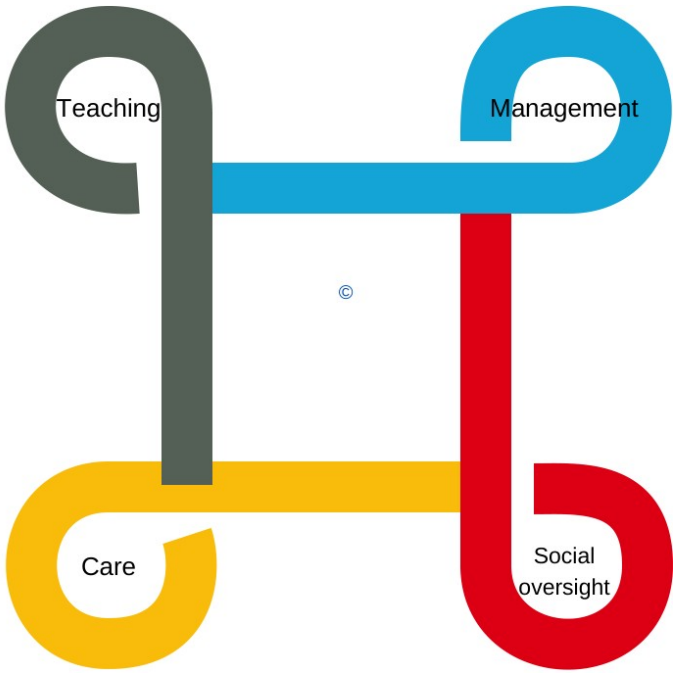
The evaluation therefore needs to take into account both learning processes and institutional conditions and the effects of educational actions on the organisation of services.

As regards the representation of the quadrilateral of health training, its understanding should not be limited to the visual description of a figure or the enumeration of its four components. The representation enables us to visualize the interdependence between teaching, management, attention and social control, but its significance lies in the political and pedagogical articulation of these dimensions. Fragmentation between them can produce educational actions that have little to do with the needs of services, while their integration favours the construction of participatory, contextualised and committed training processes for transforming health practices.

Figure 1 – The quadrilateral of health training: teaching, management, care, and social oversight



Source: Adapted from Ceccim and Feuerwerker (2004).

The assessment of the actions of Permanent Health Education therefore needs to take into account the complexity of the relationships that constitute the quadrilateral of training. Workers' learning can only produce sustainable change when accompanied by favourable institutional conditions, integration with the needs of attention and user participation in identifying service problems. This understanding extends the scope of the assessment, enabling it to analyse not only the immediate outcomes of educational activities but also their

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contribution to work reorganisation, strengthening collective participation and qualifying healthcare.

3.2 Training, learning, and professional development

Training is a professional development strategy aimed at acquiring and improving the knowledge, skills and attitudes necessary for the performance of work activities. In the field of health, these measures are of particular importance given the complexity of work processes, the constant changes in health care practices and the need to qualify the services provided to the population. However, the effectiveness of an educational activity should not be analysed solely by the content transmitted or the participation of professionals, but also by the possibilities of incorporating the knowledge acquired into everyday activities.

Baldwin and Ford (1988) point out that the transfer of training corresponds to the application, in the workplace, of the knowledge, skills and attitudes developed during a training action and to the maintenance of these learnings over time. The authors present a model that relates transfer to three sets of factors: the characteristics of the participants, the design of the training and the working environment. Individual characteristics involve aspects such as skills, experience and motivation; training design comprises the content, methods and pedagogical strategies used; while the work environment considers the organisational conditions that favour or hinder the application of what has been learned. This approach demonstrates that learning does not depend solely on the training process, as its use in practice is also related to the conditions offered by the institution.

The discussion is further elaborated by Blume et al. (2010), who, in a meta-analysis study, examined factors associated with training transfer. The authors identified relationships between the application of knowledge in the work and individual variables, training characteristics and aspects of the organisational context. Among the elements considered relevant are the motivation of the participants, the ability to use what has been learned, the support received in the professional environment and the opportunities to apply the skills developed. Thus, transfer cannot be understood as an automatic consequence of participation in training, since it depends on the link between learning, working conditions and institutional support.

In the field of training assessment, Abbad et al. (2012) contribute to broadening the understanding of the effects of educational actions on professional performance and the organisational environment. The evaluation needs to go beyond verifying the satisfaction of

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participants and the learning acquired immediately after training, incorporating the analysis of the impact of training on the job. This involves examining whether the knowledge and skills developed have been effectively used in professional activities and have contributed to changes in performance. This analysis also requires consideration of factors in the institutional context, since structural constraints, lack of resources, workload and lack of support from teams and managers may restrict the application of the content worked.

Araújo, Abbad and Freitas (2017), by addressing the qualitative assessment of training, contribute to the understanding of training processes from the analysis of participants' experiences and the conditions under which learning takes place. The qualitative approach makes it possible to grasp aspects that are not always identified by quantitative instruments, such as professional perceptions, difficulties in applying knowledge, changes in practices and institutional conditions that interfere with the results of educational activities. In this way, the evaluation is not limited to measuring outcomes, but also enables us to understand how and why certain learning is incorporated or finds obstacles to its use in professional life.

In the context of Permanent Health Education, these contributions are relevant because they make it clear that professional development is not limited to the transmission of content or the periodic completion of training. Learning needs to be related to the specific problems experienced in the services, the needs of the teams and the reorganisation of work processes. In this respect, the evaluation of educational actions should take into account not only what professionals have learned, but also the extent to which they are able to mobilise the knowledge acquired, what conditions favour its application and what institutional difficulties need to be addressed.

The link between training, learning and professional development therefore demonstrates the need for evaluative processes covering different dimensions of training. The acquisition of knowledge is an important step, but the qualification of health work also depends on the retention of the content, the transfer of learning to professional practice and the institutional support necessary for its continuity. This understanding contributes to the analysis of Permanent Health Education actions in relation to the needs of workers, the organisation of services and the improvement of work processes.

3.3 Learning assessment and the efficacy of educational initiatives

The evaluation of educational actions is a key step in assessing whether the proposed objectives have been achieved and whether the knowledge gained during the training processes

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contribute to the qualification of professional practices. In the field of health, this assessment requires an approach that goes beyond verifying worker participation and satisfaction with the activities carried out, including learning, the application of knowledge in the daily life of services and the possible effects on the organisation of work and the quality of care provided to the population. To this end, it is necessary to establish criteria and indicators consistent with the objectives of each educational action, taking into account the particularities of the services and the institutional conditions under which professionals carry out their activities.

In this discussion, it is important to distinguish the concepts of efficacy, effectiveness and efficiency, often used in the evaluation of health policies, programmes and interventions. Although they are related concepts, they do not represent the same analytical dimension. Silva and Formigli (1994), when discussing health assessment, contribute to the understanding of the need to establish criteria for analysing the results of interventions and their relationship to the intended objectives. Applied to the evaluation of educational actions, these concepts make it possible to examine different aspects of the training process without reducing the evaluation to a single measure of performance.

Efficacy refers to the achievement of the objectives previously set for an educational action, taking into account the results obtained in relation to the proposed pedagogical objectives. In this case, the evaluation seeks to identify whether the contents were understood and whether the knowledge, skills and attitudes envisaged were developed by the participants. For example, in a safe patient identification training, efficacy can be examined by verifying the understanding of protocols and the ability of practitioners to recognize the procedures necessary for proper identification.

Effectiveness, in turn, is related to the production of concrete changes in professional practices and service outcomes. Its analysis seeks to identify whether the knowledge acquired has been incorporated into everyday work and has contributed to changing institutional procedures, conduct and processes. In the example of safe patient identification, the effectiveness can be examined by systematic incorporation of identification procedures into the care routine and by possible changes in the records of occurrences related to failures in this process. However, the identification of changes does not, in isolation, allow to state that they were the result of training alone.

Efficiency corresponds to the relationship between the results achieved and the resources used to carry out the educational action. Its analysis considers elements such as time, costs, human resources, materials and available structure, seeking to understand whether the

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results obtained are consistent with the resources used. Training can achieve the proposed pedagogical objectives, but may require high resources or have organisational difficulties that need to be taken into account in assessing its efficiency.

These distinctions should not be understood as universal and isolated definitions but as operational references for organising the analysis of educational actions. Efficacy allows for the examination of the scope of training objectives; effectiveness directs the analysis to changes in service practices and results; and efficiency considers the relationship between results and resources employed. Although they can be examined together, each dimension requires specific criteria, appropriate instruments and information consistent with what is to be assessed.

Table 1 – Operational distinction between efficacy, effectiveness, and efficiency in the evaluation of educational initiatives

Concept	Central focus of the analysis	Example in the healthcare context
Efficacy	Achievement of the objectives established for the educational initiative.	Assessment of learning of safe patient identification procedures.
Effectiveness	Production of concrete changes in professional practices and service outcomes.	Incorporation of safe patient identification procedures into routine care.
Efficiency	Relationship between the results obtained and the resources used.	Analysis of training outcomes in relation to the time, costs, and resources used.

Source: Drafted by the authors (2026), based on the conceptual discussion of Silva and Formigli (1994).

Another important contribution to the assessment of educational actions is the model proposed by Kirkpatrick (1976), structured at four levels: reaction, learning, behaviour and outcomes. This model offers an organisation to examine different dimensions of the training process, allowing for analysis from participants' perceptions of the activity to the possible effects of training on the work environment. However, its use requires a critical understanding of the limits of each level, especially when relationships between participation in training and improvement of health services are to be established.

The first level, called reaction, refers to participants' perception of educational activity, covering aspects such as satisfaction, relevance of content, organisation, methodology and suitability for professional needs. This dimension enables workers to identify how they received training and whether they considered the content relevant to their activities. Satisfaction, however, is not sufficient evidence of learning. A professional can positively evaluate an

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activity, consider the content interesting and demonstrate satisfaction with the methodology, without necessarily having acquired the intended knowledge and skills.

The second level, called learning, seeks to verify that the participants have developed the knowledge, skills and attitudes envisaged in the pedagogical objectives. This assessment may be carried out by means of tests, questionnaires, case studies, simulations, practical demonstrations and other instruments compatible with the contents worked. In the case of safe patient identification training, for example, it may be checked whether the practitioners have understood the protocols, recognised the risks associated with incorrect identification and demonstrated ability to perform the recommended procedures. However, the demonstration of learning immediately after the activity does not guarantee that knowledge will be maintained over time or used in specific work situations.

The third level, called behaviour, refers to the application of knowledge, skills and attitudes developed during training in the professional environment. At this stage, the evaluation seeks to identify whether there have been changes in workers' behaviour and procedures. To this end, tools such as practice observation, records analysis, routine monitoring and interviews with professionals can be used. In the example of safe patient identification, the analysis should verify whether the learned procedures have been effectively incorporated into care activities. This stage also requires consideration of working conditions, availability of materials, organisation of teams and institutional support, as these factors may favour or hinder the application of knowledge.

The fourth level, results, seeks to examine the effects of educational action on institutional objectives and service outcomes. In the field of health, indicators relating to patient safety, the quality of procedures, the organisation of care flows and the reduction of preventable occurrences can be considered. However, the identification of changes in these indicators does not automatically attribute the results to the training carried out. In order to establish a more consistent relationship, it is necessary to analyse the conditions under which the intervention took place and identify other factors that may have contributed to the observed changes.

The link between the four levels makes it clear that the evaluation of educational actions involves different and complementary dimensions. The satisfaction of workers does not prove that there has been learning; learning does not guarantee the retention of knowledge; retention does not ensure its transfer to the professional environment; and the application of knowledge, in turn, does not necessarily mean that improvements have been made in assistance outcomes.

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Each stage requires specific evaluation procedures and must be interpreted taking into account the individual, pedagogical and institutional conditions that interfere with training processes.

In this respect, the monitoring of educational activities must take into account the gap between the completion of training and the verification of its application in the workplace. An activity on safe patient identification, for example, can be assessed initially through learning verification tools and subsequently by observations of professional practice and analysis of institutional records. Monitoring may take place at different times, such as after 30, 60 or 90 days, provided that these intervals are defined according to the training objectives, the complexity of the content, the frequency of the procedure and the working conditions. These deadlines constitute evaluative planning possibilities, and not universal or mandatory scientific parameters. In certain situations, more immediate or prolonged follow-up may be necessary to identify whether knowledge has been maintained and incorporated into professional practice.

The use of health indicators can also contribute to the evaluation of the results of educational actions, provided that their selection is related to the objectives of the intervention and the changes that are intended to be accompanied. Indicators of incidents, procedural failures, quality of records, compliance with protocols and continuity of care, for example, can provide relevant information on the functioning of services. However, the analysis of these data requires caution, as changing an indicator after a training does not in itself demonstrate that the educational activity was responsible for the result observed.

It is necessary to consider the existence of factors that may interfere with results, such as changes in the composition of teams, staff turnover, availability or insufficiency of inputs, changes in institutional protocols, structural conditions, reorganization of service flows and the simultaneous implementation of other interventions. A reduction in patient identification incidents, for example, may be associated with training, but also with the deployment of new technologies, the revision of protocols, the acquisition of equipment or the strengthening of supervisory mechanisms. Similarly, the absence of changes in the indicators does not necessarily mean that educational action has been ineffective, as organisational difficulties may prevent the knowledge acquired from being applied.

Thus, the interpretation of the indicators should take into account the institutional context, the follow-up period, the pre-intervention conditions and the existence of other changes during the process. Wherever possible, it is recommended to establish a baseline, define comparison criteria and combine quantitative and qualitative information, allowing to understand not only whether there has been a change in the results but also what factors

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contributed to their occurrence. This articulation extends the capacity for analysis and avoids causal attributions that cannot be supported by the available data.

In the context of Permanent Health Education, the assessment must be linked to the reality of services and the participation of workers in the identification of problems and the analysis of results. The aim should not be solely to verify the individual performance of professionals, but to understand whether educational actions respond to the needs identified in everyday work and whether there are institutional conditions to produce change. This requires management to be involved in planning and monitoring activities, providing resources and creating spaces for knowledge to be discussed, experienced and incorporated into professional practice.

Therefore, the assessment of learning and the efficacy of educational actions should be understood as a continuous process, which articulates pedagogical objectives, knowledge acquisition, retention, transfer to work and analysis of institutional outcomes. The distinction between efficacy, effectiveness and efficiency, combined with the critical use of the assessment levels proposed by Kirkpatrick (1976), offers a basis to build more consistent assessment procedures. This understanding makes it possible to identify the results achieved, recognize the limits of interventions and analyse the conditions necessary for Permanent Health Education to contribute effectively to the qualification of workers and the transformation of work processes.

3.4 Knowledge transfer to professional practice

The transfer of knowledge into professional practice is a key dimension in the evaluation of the actions of Permanent Health Education, as it allows to analyse the extent to which the knowledge, skills and attitudes developed during the training processes are incorporated into the daily life of the services. The participation of workers in educational activities and the demonstration of learning at the end of training do not necessarily ensure changes in professional practices. In order for learning to become concrete actions, a set of individual, pedagogical and organisational factors that interfere with the use of acquired knowledge must be considered.

Baldwin and Ford (1988) understand training transfer as the application of knowledge and skills acquired during training in the workplace, including their maintenance over time. The authors present an explanatory model in which the transfer is related to the characteristics of the participants, the design of the training and the organisational environment. This approach demonstrates that the application of knowledge depends not only on the individual interest or

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ability of the worker but also on the quality of the training strategies and the conditions offered by the institution for their use.

Blume et al. (2010), by analysing factors associated with the transfer of training, also highlight the importance of the link between individual characteristics, aspects related to training and working environment conditions. This understanding makes it possible to organise the analysis of knowledge transfer in three interdependent dimensions: individual, pedagogical and organisational. Although presented separately for analytical purposes, these dimensions act in an articulated way and may favour or limit the incorporation of knowledge into professional practice.

The individual dimension comprises aspects related to the worker himself, including motivation, prior knowledge, interest, involvement and ability to apply what has been learned. The career trajectory, the experience gained and the understanding of the needs present in everyday work influence the way in which each participant assimilates and uses the content developed in educational activities. Motivation to learn and modify practices can also facilitate transfer, especially when the worker recognises the relevance of knowledge to dealing with specific situations. However, responsibility for the application of learning should not be assigned exclusively to the professional, since its performance is conditioned by the possibilities and limitations of the institutional environment.

The pedagogical dimension relates to the organisation and conduct of educational activities, covering the content, methodologies, teaching resources and strategies used to promote learning and its application in the workplace. Contextualization of the contents, problematization of real situations, case studies, simulations and practical activities can bring the training process closer to the demands faced by healthcare workers. Follow-up, content retrieval and learning reinforcement strategies can also contribute to the maintenance of knowledge and its use in different professional situations. In this way, educational actions built on the needs identified by the teams tend to be more aligned with the specific challenges of work processes.

The organisational dimension comprises the institutional conditions which favour or hinder the application of acquired knowledge. Among the elements that need to be taken into account are the support of managers, management incentives, the availability of material and human resources, structural conditions, the organisation of work processes and concrete opportunities for the use of skills developed. A professional may demonstrate mastery of certain content and a willingness to modify his practice, but encounter obstacles due to lack of inputs,

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overload of activities, outdated protocols or lack of institutional support. In such circumstances, the difficulty of transfer should not be interpreted solely as an individual failure but should be analysed in relation to objective working conditions.

The combination of these three dimensions makes it possible to understand that knowledge transfer results from the interaction between the worker, the training process and the organisational environment. Individual motivation may promote learning, but its impact in practice depends on methodologies that enable the mobilisation of knowledge and institutional conditions that allow its application. Similarly, pedagogically appropriate training may not produce significant changes when professionals do not have the resources, autonomy or opportunities to incorporate content into everyday activities.

In the field of Permanent Health Education, this link is relevant because the educational process must be linked to the problems identified in the daily life of the services and the possibilities of transforming professional practices. Knowledge transfer not only represents the reproduction of procedures taught during a training, but involves the ability to mobilise knowledge and skills to analyse concrete situations, make decisions and build responses consistent with the needs of users and the tasks of teams. For this reason, the evaluation must take into account both individual learning and the collective and institutional conditions that enable its use.

The contribution of Araújo, Abbad and Freitas (2017), especially with regard to the qualitative assessment of training, enables this analysis to be broadened by considering participants' experiences, their perceptions of training processes and the conditions that interfere with the application of knowledge. The qualitative approach can help identify obstacles that are not sufficiently addressed by quantitative indicators, such as difficulties in adapting content to the reality of the service, resistance to change, limitations in the organisation of work and lack of support from managers. It also makes it possible to understand how practitioners perceive changes in their practices and what institutional aspects need to be improved.

Therefore, the assessment of knowledge transfer should combine different monitoring strategies, such as observing professional practices, analysing institutional records, interviews, team meetings and verifying the implementation of protocols. The choice of instruments should take into account the nature of the educational action, the objectives set and the type of change to be identified. Follow-up at different times also allows to verify whether knowledge remains embedded in professional activities or whether its use decreases over time.

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However, identifying changes in practices requires a contextualised analysis. The adoption of a particular procedure after training, for example, may be related not only to the training of professionals but also to the updating of protocols, the reorganization of teams, the deployment of new resources or the monitoring carried out by managers. The evaluation should therefore take into account the different conditions which interfere with the transfer, avoiding the attribution exclusively to educational action of results which may result from multiple interventions.

In this way, the transfer of knowledge into professional practice must be understood as a process conditioned by the interaction between individual, pedagogical and organisational factors. This understanding helps to overcome assessments focused exclusively on participation and immediate knowledge acquisition, allowing us to examine whether actions in the field of Permanent Health Education are conducive to changing practices and strengthening work processes. The analysis of these dimensions also offers a basis to identify needs for improving education strategies and institutional responsibilities in building environments conducive to learning and service qualification.

Table 2 – Dimensions involved in the transfer of knowledge to professional practice

Dimension	Elements involved	Aspects to be assessed
Individual	Motivation, prior knowledge, interest, engagement, and ability to apply knowledge.	Understanding of content, participation, confidence in performing procedures, and willingness to change practices.
Pedagogical	Methods, contextualisation, simulations, case studies, and reinforcement strategies.	Suitability of content for service needs, links between theory and practice, and opportunities for experimentation.
Organisational	Support from supervisors, available resources, working conditions, and opportunities for application.	Institutional support, availability of supplies, team organisation, autonomy, and incorporation of knowledge into routines.

Source: Drawn up by the authors (2026), based on Baldwin and Ford (1988), Blume et al. (2010) and Araújo, Abbad and Freitas (2017).

In view of the above, the transfer of knowledge into professional practice must be considered as a process involving the link between the individual conditions of workers, the pedagogical strategies adopted and the support offered by health institutions. Understanding these dimensions makes it possible to identify factors that favour or hinder the incorporation of knowledge into professional routines, avoiding assigning sole responsibility for the results of educational activities to workers. Thus, the assessment of Permanent Health Education must

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take into account not only what has been learned, but also the concrete application opportunities and the institutional conditions necessary for the transformation of practices and the qualification of health work processes.

3.5 Professional development and implications for health practice

Vocational qualification is a key element in improving health work, especially in the face of the complexity of user demands and the constant changes in the organisation of services. Educational processes can contribute to broadening knowledge, developing skills, strengthening skills and improving the ability of workers to respond to the health needs of the population. However, its effects should be understood not only by the volume of content transmitted or by the number of trained professionals, but also by the possibility of incorporating knowledge into professional activities and improving practices developed at different levels of attention.

The development of professional skills involves the linking of theoretical knowledge, technical skills, attitudes and the ability to analyse and intervene in the face of everyday service situations. In the health sector, this link is particularly relevant because meeting the needs of users requires workers not only technical proficiency but also communication, decision-making, risk identification and handling complex situations. Vocational qualification, in this sense, can promote greater security in the implementation of procedures, improved behaviour and a broader understanding of the social determinants and conditions that interfere with the health-disease process.

One of the important repercussions of educational processes is the strengthening of interdisciplinary and multi-professional work. The complexity of health needs requires the joint action of different occupational categories, whose knowledge and responsibilities need to be integrated into the construction of institutional responses. Qualification can contribute to improving communication between team members, promoting the recognition of the specific skills of each profession and increasing the capacity to plan and implement shared actions. This articulation can also reduce fragmentation of care, promote continuity of care and strengthen co-responsibility among professionals in handling user requests.

In interdisciplinary work, the contribution of different areas of knowledge makes it possible to analyse health situations beyond isolated interventions, taking into account their biological, psychological and social dimensions. The training of workers can help to understand the limits and possibilities of each occupation by contributing to the development of joint

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intervention strategies. However, interdisciplinary action does not automatically result from participation in educational activities, as it also depends on institutional dialogue spaces, collective planning, the definition of responsibilities and appropriate conditions for the development of teamwork.

Another relevant impact of professional qualification is related to patient safety. The development of technical skills and the updating of knowledge can contribute to the identification of risks, the prevention of failures, the adoption of protocols and the safer implementation of assistance procedures. Training on proper patient identification, medicines administration, infection prevention and communication among professionals, for example, can encourage the incorporation of practices aimed at reducing incidents and protecting users. However, improving safety also depends on the availability of inputs, the adequacy of equipment, the organisation of service flows and the existence of institutional mechanisms for monitoring and risk prevention.

The quality of assistance processes can also be enhanced by the qualification of workers, especially where the knowledge developed contributes to improving reception, the assessment of user needs, the implementation of procedures and the monitoring of interventions carried out. Professional updating may encourage the adoption of practices based on technical and scientific knowledge, as well as the identification of situations requiring guidance, specialist monitoring or linking with other care network services. In order to consolidate these changes, it is necessary that the content of the educational actions is related to the specific needs of the services and accompanied by conditions enabling their implementation.

Vocational qualifications also have an impact on the organisation of health services. The incorporation of new knowledge can help to review routines, improve attendance flows, improve records, strengthen communication mechanisms and qualify planning and evaluation processes. When workers are involved in identifying difficulties and building alternatives, educational actions can encourage the revision of procedures and the adoption of strategies more suited to institutional demands. These changes, however, require management participation, the availability of resources, the definition of responsibilities and the monitoring of results, since individual learning is not sufficient to modify organizational structures and processes.

Humanisation and the integrity of care are other dimensions which can be strengthened by professional qualifications. Expanding knowledge about user needs, social rights, diversity of living conditions and social determinants of health can contribute to more welcoming,

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respectful and committed care practices for human dignity. Humanization is not limited to caring, it involves the recognition of users as subjects of rights, listening to their demands, respect for autonomy and consideration of their social, cultural and family conditions. Integrity, on the other hand, requires a broad understanding of health needs, with a link between promotion, prevention, treatment and rehabilitation actions, and integration between the different services of the care network.

In the context of the single health system, these dimensions are of particular importance because the quality of care is linked to the capacity of services to respond to the needs of the population in an articulated and continuous manner. The training of professionals can contribute to broadening the understanding of user rights, improving communication between teams and strengthening the link between services. However, the completion of integration depends on conditions that go beyond individual training, involving network organisation, availability of services, human resources, infrastructure and the link between different levels of attention.

It is important to note that the repercussions of educational processes do not occur automatically or uniformly. Participation in training alone does not guarantee the development of new skills, the improvement of patient safety or the transformation of care processes. Among learning and the production of change, there are factors that may favour or restrict results, such as worker motivation, the adequacy of methodologies, the support of managers, the availability of resources, workload, the stability of teams and the structural conditions of services. For this reason, the assessment of professional qualifications should take into account both the results achieved by participants and the institutional conditions necessary for the application of knowledge.

The impact analysis also requires the use of tools to monitor changes in professional practices and the organisation of services. Observation of activities, analysis of institutional records, monitoring of indicators, team meetings and listening to users can provide relevant information on the effects of educational actions. These instruments shall be selected according to the objectives of the training and interpreted taking into account other interventions and changes in the evaluated period. In this way it is possible to identify progress, difficulties and needs for improvement, without assigning to training only results that may be related to other institutional factors.

Vocational qualification must therefore be analysed on the basis of its possible impact on worker performance, team integration, user safety, quality of care processes and organisation of health services. Their contribution to the humanization and integrity of care depends on the

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link between knowledge, professional skills and concrete working conditions. Thus, more than promoting the pursuit of educational activities, it is necessary to ensure that the knowledge gained finds real opportunities for application, follow-up and continuity, encouraging consistent changes in professional practices and the quality of care offered to the population.

4. Results and discussion

4.1 Learning as a component of the efficacy of PHE initiatives

The analysis of the selected scientific output shows that learning is a key component in assessing the efficacy of educational actions, as it allows to verify whether the knowledge, skills and attitudes envisaged in the pedagogical objectives have been developed by the participants. However, the findings indicate that knowledge acquisition is only one stage of the evaluation process and is not sufficient, in isolation, to demonstrate that educational action has produced changes in professional practice. It is also necessary to take into account the maintenance of knowledge over time, its application in the workplace and the institutional conditions that favour or hinder its incorporation into health work processes.

This understanding requires a distinction between efficacy and effectiveness, concepts which, although related, correspond to different dimensions of the assessment. In this study, efficacy is used as an analytical axis to examine the scope of the objectives set for educational actions, especially with regard to the learning of professionals. Effectiveness, in turn, is taken into account in the analysis of the concrete changes in professional practices and service outcomes. This distinction makes it clear that training can achieve its pedagogical objectives without necessarily producing lasting changes in institutional life.

Silva and Formigli (1994) point out that the concepts of efficacy, effectiveness and efficiency have different definitions in the literature and are often used overlappingly. The authors stress the need to take into account the criteria adopted in each evaluation process, since the interpretation of the results depends on the objectives and dimensions to be analysed. Applied to Permanent Health Education actions, this distinction allows examination of whether practitioners have learned the contents worked on, whether they have been able to use them in everyday activities and whether the results achieved were consistent with the resources employed.

The findings also reinforce the importance of understanding learning beyond the assessment carried out immediately after training. Kirkpatrick's model, organized into four

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levels – reaction, learning, behavior, and outcomes – helps to structure this analysis. The reaction allows to know the perception of participants about the educational activity; learning verifies the acquisition of knowledge, skills and attitudes; behaviour examines the application of what has been learned in the professional environment; and the results consider the effects associated with the institutional objectives of training (Kirkpatrick, 1976 apud Mendes, 2015).

Analysis of these levels shows that participants' satisfaction does not in itself prove learning; learning does not ensure knowledge retention; retention does not guarantee its transfer to work; and the application of knowledge does not automatically mean that there has been an improvement in assistive outcomes. Each dimension requires its own instruments and must be interpreted according to the conditions under which the educational action was developed.

Borges-Andrade and Abbad (1994) highlight the influence of organisational variables on training outcomes, including managerial support, the availability of resources, training and professional development policies and the quality of the assessment of training needs. This contribution makes it clear that the learning of professionals cannot be analysed in isolation from institutional conditions. Even when participants demonstrate mastery of content at the end of a training, the lack of resources, support from managers or opportunities to apply knowledge can jeopardise their use in everyday work.

The analysis also indicates that the identification of educational needs should precede action planning and guide the definition of learning objectives. Ceccim and Feuerwerker (2004) highlight the importance of the link between education, management, care and social control in health training, linking educational processes to the specific needs of services. This articulation helps the evaluation to take into account not only the individual performance of workers but also the relevance of educational actions in the face of the problems identified in the work process.

Consequently, the results discussed in this category indicate that learning is an indispensable component of assessing the efficacy of Permanent Health Education actions, but does not exhaust the analysis of their effects. To understand the contribution of these initiatives, it is necessary to monitor the retention of knowledge, its transfer to professional practice and the institutional conditions enabling its application. This understanding is the basis of the following discussion on the preservation of knowledge and its use in the workplace.

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4.2 Knowledge retention and transfer to professional practice

The retention of knowledge and its transfer to professional practice are fundamental dimensions for understanding the results of educational activities, as they allow to analyse whether the content developed during training is maintained over time and used in everyday activities. The analysis of the selected studies shows that initial learning does not necessarily ensure that knowledge remains or is applied in specific work situations. For this reason, the evaluation of the actions of Permanent Health Education needs to take into account post-training periods, taking into account the continuity of learning and the conditions which interfere with the use of the knowledge acquired.

Albert et al. (2024), in a systematic review published in BMC Medical Education, Volume 24, Article 997, analysed the retention and application of basic science knowledge in clinical practice by medical professionals. The results discuss the importance of educational strategies that promote the maintenance and mobilisation of knowledge in professional practice. Although the study does not specifically investigate institutional programmes of Permanent Health Education, its contribution is relevant to understanding the processes of retention and application of knowledge in the training and practice of health professionals. Thus, their findings offer theoretical a basis for the planning of educational actions that consider continuity of learning, without being interpreted as direct evidence of the efficacy of PHE programmes.

In addition, Tung et al. (2022), in a systematic review of randomized clinical trials on the effects of learning transfer on clinical performance of healthcare professionals, analysed the relationship between knowledge developed in training processes and its application in the workplace. The authors contribute to the understanding that the transfer of learning needs to be examined on the basis of observable results in professional performance. However, the characteristics of the studies included and the heterogeneity of the interventions need to be taken into account in the interpretation of the results, avoiding generalizations for all forms of training or for different institutional contexts of Permanent Health Education.

Trumble et al. (2024), in a systematic review that brought together 56 studies and 63 experiments on distributed practice and active information retrieval in healthcare professionals' education, identified benefits of these strategies for academic performance in most of the studies analysed. Distributed practice consists of retrieving content at different times, while active retrieval involves the effort to recall previously learned information. While the results relate to the education of healthcare professionals and not exclusively to institutional PHE programmes,

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they offer contributions to skills planning which include periodic reviews, knowledge retrieval questionnaires, simulations and practical activities.

Martinengo et al. (2024), in a systematic review and meta-analysis on spaced digital education for healthcare professionals, also identified results favourable to learning and changing clinical behaviour in certain intervention modalities. These findings reinforce the importance of considering distributed educational strategies over time, especially when content requires updating, retaking and application in different professional situations. However, the results should be interpreted according to the characteristics of the interventions and study participants, and it cannot be claimed that all digital strategies produce the same effects or that their results are automatically replicated in the PHE programmes.

The systematic review and meta-analysis by Hill et al. (2024), published in the Journal of Evaluation in Clinical Practice, Volume 30, No. 6, pp. 909 – 935, examined the effectiveness of evidence-based educational interventions on knowledge, skills, attitudes, occupational practices and health outcomes. The publication expands the discussion on the evaluation of educational interventions by considering different dimensions of their effects on professionals and services. However, because evidence-based health education interventions are addressed, their results should not be presented as specific to the Permanent Health Education Policy or institutional PHE programmes. Their contribution to this study is to demonstrate the importance of assessing different outcomes of educational interventions, taking into account knowledge, professional practices and possible effects on services.

The approximation between these studies makes it possible to identify a convergence: learning must be accompanied by strategies that promote its maintenance and application. However, the publications analysed present distinct objects, methodologies and contexts. Some address the retention of scientific knowledge in medical practice; others examine the transfer of learning into clinical performance; and others investigate distributed education strategies or evidence-based educational interventions. Therefore, their contributions are complementary to the understanding of the learning and transfer processes, but should not be interpreted as directly equivalent results or as uniform proof of the efficacy of institutional actions in Permanent Health Education.

Within services, these findings support the need to implement assessment mechanisms that go beyond verifying the presence of professionals and satisfaction with skills. Learning can be examined immediately after educational activities by means of tests, questionnaires, case studies and simulations. Subsequently, retention and transfer may be accompanied by direct

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observations, audits, analysis of institutional protocol adherence and verification of professional practice. A comparison of assessments at different times can help identify learning gaps, the need for educational reinforcement and difficulties in applying knowledge.

However, the transfer does not depend solely on the individual capacity of the worker. Leadership support, the availability of resources, the organisation of teams and concrete opportunities to apply skills interfere with the incorporation of knowledge into institutional routines. Thus, the absence of changes in practices should not be automatically attributed to lack of learning or to the disinterest of professionals, as it may be related to organisational obstacles that limit the use of what has been learned.

Thus, knowledge retention and transfer must be understood as related but distinct processes. The first involves the maintenance of knowledge over time; the second involves its mobilisation and application in working situations. The joint analysis of these dimensions allows a deeper understanding of the results of educational actions and provides a basis for the planning of follow-up strategies that contribute to the qualification of health work processes.

4.3 Strategies for assessing learning and knowledge transfer

The analysis of scientific output shows the need to use evaluative strategies capable of monitoring different stages of educational processes, from the verification of initial learning to the identification of changes in professional practices. The use of a single instrument, especially when applied only at the end of training, has limitations on demonstrating the retention of knowledge and its transfer to the working environment. For this reason, the evaluation of the actions of Permanent Health Education should combine instruments and procedures compatible with the pedagogical objectives, the nature of the content and the changes to be accompanied.

Among the strategies used to verify initial learning are tests, questionnaires, case studies and problem solving activities. These tools enable the understanding of the content and the development of knowledge related to the objectives of training to be identified. Where the educational activity involves practical skills, simulations, demonstrations and observation of the implementation of procedures can be used to verify whether participants are able to mobilise knowledge in situations close to the requirements of everyday work.

Direct observation is a relevant strategy for examining the transfer of learning, as it enables monitoring of procedures and identifying whether the knowledge acquired during training has been incorporated into practice. However, its use requires predefined criteria, recording instruments and clarity as to the behaviours to be observed. It is also necessary to

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consider that the presence of an evaluator may temporarily alter the behaviour of professionals, which is why the observation should be interpreted in conjunction with other sources of information.

Audits of institutional processes and records may also contribute to assessing the application of knowledge. An analysis of compliance with protocols, the quality of records, compliance with step-by-step procedures and the occurrence of failures makes it possible to identify aspects related to the organisation of work and the use of skills developed. However, the results of the audits need to be interpreted taking into account the structural conditions, the resources available, the composition of the teams and the institutional standards in force.

Simulations represent another possibility for evaluation, especially where the contents involve complex procedures, decision-making and situations requiring coordinated action among professionals. Through them it is possible to observe the mobilisation of knowledge, technical skills, communication and responsiveness in the face of pre-structured situations. While they are useful for examining performance under controlled conditions, simulations do not replace monitoring of actual practices as the simulated environment does not fully reproduce the conditions and challenges encountered in health services.

Monitoring of indicators may also provide relevant information on the outcomes of educational actions. Indicators related to patient safety, adherence to protocols, quality of records, occurrence of incidents and organisation of care flows may be selected according to the objectives of the training. Pereira and Tomasi (2016) emphasise the importance of indicators as supporting instruments for the management and monitoring of health conditions, helping to identify needs and opportunities for service improvement.

However, the change in an indicator after training does not, in isolation, demonstrate that the change was brought about by educational action. The interpretation of the results requires consideration of other variables that may interfere with institutional performance, such as changes in team composition, staff turnover, availability of inputs, updating of protocols, structural changes, reorganization of service flows and simultaneous implementation of other interventions. Incident reduction, for example, may be related to training, but also to the deployment of new technologies, the acquisition of equipment or the strengthening of supervisory mechanisms.

In order to increase the consistency of the assessment, it is recommended to establish a baseline, define the indicators before the educational activity is carried out and monitor its development over periods consistent with the objectives of the intervention. The comparison

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between previous and subsequent data can provide information on the observed changes, but causation assignment requires evaluative designs capable of controlling or analysing the influence of other factors. Where there are no methodological conditions for establishing this relationship, the results should be presented as changes temporarily associated with the intervention and not as effects provenly produced by it.

The combination of quantitative and qualitative strategies can broaden the understanding of the results. While indicators and audits enable tracking of frequencies, occurrences and adherence to procedures, interviews, team meetings and observations may reveal implementation difficulties, worker perceptions and institutional obstacles. This integration makes it possible to understand not only whether there has been change, but also how it has occurred, what factors have contributed to its realization and what conditions need to be improved.

Follow-up times should also be defined according to the nature of the educational action. The initial assessment may take place immediately after the training, while the retention and transfer verification may be carried out subsequently, at intervals established according to the complexity of the contents, the frequency of the procedures and the opportunities for application. Periods of 30, 60 or 90 days may be adopted as planning possibilities, but they are not universal or mandatory scientific parameters. In some situations, monitoring should take place at a shorter time; in others, a longer period will be needed to identify the maintenance of learning and changes in practices.

The organisation of these strategies enables an ongoing evaluation process to be built, whereby the results obtained at each stage guide subsequent decisions. The identification of learning difficulties may indicate the need to review content and methodologies; the finding of low retention may justify strategies for reinforcement and retaking of knowledge; and the absence of transfer may indicate the need for interventions related to organisational conditions and institutional support.

Therefore, the assessment of the actions of Permanent Health Education should include tools for learning verification, follow-up, observation of practices, audits and analysis of indicators. The choice of procedures must take into account the objectives of each intervention and the limits of the information produced. This articulation helps to identify progress, identify obstacles and guide the improvement of educational actions, avoiding that assessment is restricted to the satisfaction of participants or the measurement of isolated results.

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4.4 Factors affecting the efficacy of Permanent Health Education initiatives

Analysis of studies shows that the efficacy of Permanent Health Education actions is related to factors that go beyond the planning and execution of educational activities. Although vocational training is a central dimension, its continuity and application depend on the interaction between workers, management, training institutions, users and the specific conditions of services. These elements interfere with the participation of professionals, the carrying out of activities, the retention of knowledge and the possibilities of transforming practices.

Ceccim and Feuerwerker (2004) highlight the importance of the link between education, management, attention and social control in health education. This integration promotes the convergence of educational institutions, health services, managers, workers and users, helping to make educational processes relevant to the needs of the population and the challenges in the organisation of services. The absence of linkage between these components can result in fragmented training activities, with little to do with everyday problems and limited possibilities to bring about changes in professional practices.

Moraes et al. (2021) point out that Permanent Health Education brings educational processes closer to the reality of services, turning everyday experiences into opportunities for learning and professional development. By taking into account workers' prior knowledge and the challenges of the work process, educational actions can help build contextualised learning and develop professional autonomy. This contribution demonstrates the importance of linking the training content to the situations effectively experienced by the teams, avoiding activities unrelated to institutional needs.

Another relevant factor concerns the participation of workers in identifying educational needs and building intervention strategies. Team meetings, exchanges of experience and knowledge sharing can help identify difficulties and develop collective responses to service problems. The participation of professionals also contributes to broadening the relevance of educational activities, as it allows considering different assignments, experiences and demands present in institutional everyday life (MORAES et al., 2021).

Institutional management plays an important role in the continuity and effectiveness of educational processes. The support of managers, the organisation of schedules, the availability of resources, the enhancement of workers and the creation of opportunities for the application of knowledge directly influence the possibilities for the transfer of learning. When management does not recognise education as part of the work process, activities may take place on a one-

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time basis, without continuity or follow-up of results. On the other hand, institutional involvement can promote the incorporation of educational actions into service planning and professional routines.

However, the implementation of the PHE may be hampered by a lack of planning, limited availability of time, insufficient material and human resources and an inadequate understanding of its purpose. These barriers can compromise worker participation and make it difficult to link training activities with the needs of work. Management support and team participation in action planning are therefore important elements to foster continuity of learning and the possibility of transformation of practices (MORAES et al., 2021).

The participation of workers in educational activities is also a challenge identified in the literature. Moraes et al. (2021), while discussing previous studies, point out difficulties related to the adherence of professionals to the actions of Permanent Health Education. Based on Seidl et al. (2014 apud Moraes et al., 2021), the authors highlight the need to strengthen worker involvement so that activities are aligned with professional and user needs. This discussion indicates that participation depends not only on individual availability but also on the relevance of the topics, the organisation of work, institutional support and the conditions offered for professionals to participate.

The literature also points to difficulties in systematising educational activities in health services. Moraes et al. (2021), referring to Mora and Rizzotto (2015 apud Moraes et al., 2021), discuss the occurrence of one-off and sporadic initiatives in the hospital context, accompanied by limited participation of professionals. This situation shows that the isolated completion of skills does not ensure the continuity of learning processes. Activities need to be integrated into institutional planning, monitored and resumed according to the needs identified in the teams.

Seidl et al. (2014 apud Moraes et al., 2021) also point out that the absence or insufficiency of systematic educational proposals may be related to the lack of knowledge or interest of managers in implementing actions aligned with the needs of workers and users. The results discussed by the authors indicate that PHE is not always recognised by management as a strategy for professional development, qualification of care and transformation of work processes. This finding reinforces the importance of broadening the institutional understanding of continuing education by incorporating it into planning and service management responsibilities.

Another aspect which interferes with the results of educational activities is the availability of material and organisational conditions for the application of knowledge.

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Insufficient inputs, inadequate equipment, workload, staff turnover and the absence of updated protocols may limit the incorporation of learning into routines. Even when workers demonstrate interest in and mastery of the content, objective conditions may prevent the proposed changes from being implemented. The evaluation should therefore examine the relationship between learning and institutional organisation, avoiding solely holding professionals accountable for results that depend on management decisions and resources.

The factors involved may also act simultaneously. Low employee participation, for example, may be related to inadequate hours, overwork, lack of support from managers or the perception that content does not meet the needs of the service. Similarly, the difficulty of transfer may arise from structural constraints, lack of resources and lack of opportunities to apply knowledge. The analysis of these relationships makes it possible to understand that the results of educational actions are conditioned by a set of elements that need to be taken into account in planning, implementation and evaluation.

In view of these contributions, the efficacy of Permanent Health Education actions must be analysed by considering the interaction between individual, pedagogical and organisational factors. The motivation and involvement of workers, the adequacy of educational strategies, management support, the availability of resources and user participation interfere with the possibilities for learning and transformation of practices. The identification of these factors makes it possible to understand the limits of training processes and to guide interventions to strengthen participation, continuity of learning and the application of knowledge in the professional environment.

Thus, the results discussed show that educational activities, although necessary, are not sufficient to ensure the qualification of health services. The consolidation of knowledge and its impact on practice depend on planning, monitoring, worker participation and favourable institutional conditions. The evaluation must therefore go beyond measuring immediate results and take into account the factors that interfere with continuity of learning and transformation of work processes, recognising that professional qualification is the result of a construction involving the different subjects and dimensions of the organisation of services.

5. Final considerations

The analysis of scientific output has shown that the evaluation of the actions of Permanent Health Education (PHE) requires the consideration of different dimensions of the educational process, going beyond the verification of worker participation and learning

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immediately following training activities. While these elements are important to identify the implementation and receptiveness of actions, they are not sufficient to demonstrate the maintenance of knowledge acquired, its incorporation into professional practice and its potential repercussions on the organisation of health services.

The studies examined demonstrate the importance of articulating learning, retention and knowledge transfer in evaluating the outcomes of educational activities. These dimensions are related but represent distinct processes. Learning refers to the acquisition or development of knowledge and skills; retention refers to their maintenance over time; and transfer refers to the use of what has been learned in specific work situations. Therefore, the demonstration of learning at the end of a training does not guarantee that knowledge will be preserved or applied later.

The contributions of Baldwin and Ford (1988) and Blume et al. (2010) demonstrate that knowledge transfer is associated with individual, pedagogical and organizational factors. This understanding makes it possible to recognize that the results of educational activities do not depend solely on the interest or commitment of professionals. The application of knowledge is also subject to the relationship between the content and professional assignments, the methodologies used and the opportunities offered by the institution to modify practices.

At the individual level, prior knowledge, motivation, professional experience and employee involvement can promote learning and use. In the pedagogical dimension, strategies that bring the content of real work situations closer together, such as case studies, simulations, practical activities and collective discussion of problems, can contribute to the building of relevant knowledge. However, educational methodologies need to be aligned with the needs identified in the services, avoiding one-off activities and unrelated to professional reality.

The organisational dimension is central to this process. Leadership support, the availability of material resources, the adequacy of workflows, the availability of discussion spaces and the enhancement of worker participation promote knowledge transfer. On the other hand, overwork, insufficient staff, lack of materials, structural constraints and lack of institutional support can make it difficult to incorporate knowledge into practice. Therefore, it is not appropriate to attribute solely to professionals the responsibility for the absence of changes resulting from educational activities.

The productions of Albert et al. (2024), Tung et al. (2022), Trumble et al. (2024), Martinengo et al. (2024) and Hill et al. (2024) expand the discussion on retention, learning and application of knowledge in the training of healthcare professionals. While not necessarily

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addressing Permanent Health Education in a strict sense, they offer contributions to understanding pedagogical strategies, continuity of learning and transition to professional practice. This distinction is important in order to limit the scope of the results and to avoid attributing to those studies specific conclusions on PHE policy that were not their research objectives.

Analysis also allows for the recognition that the evaluation needs to take place at different times. Initially, it is necessary to identify educational needs and to set objectives consistent with the problems observed in work processes. During and at the end of the activities, questionnaires, tests, case studies and simulations may be used to verify learning. Subsequently, monitoring of professionals through direct observation, audits, record analysis and team meetings can help identify knowledge retention and transfer.

The use of patient quality and safety indicators can also assist in assessing the impact of educational actions. However, these indicators need to be interpreted with caution as the results of services are influenced by different factors such as structural conditions, availability of inputs, team size, changes in management and deployment of protocols. An improvement identified after a particular educational activity cannot be automatically attributed to training without considering other variables that may have interfered with the outcome.

In this respect, it is necessary to distinguish between efficacy, effectiveness and efficiency. Efficacy refers to the achievement of the objectives set for educational action; effectiveness considers changes in the specific conditions of services; and efficiency examines the relationship between the results achieved and the resources used. These categories contribute to qualifying the assessment, provided they are not used as synonyms. An activity can achieve its learning objectives without necessarily producing immediate changes in professional practices or assistance indicators.

Kirkpatrick's assessment model also contributes to this discussion by considering four dimensions: reaction, learning, behavior and outcomes. Its use enables the analysis to extend beyond the satisfaction of participants by incorporating the verification of knowledge acquired, its application to the professional environment and the possible institutional repercussions. However, the application of this model should take into account the specificities of the health services and the conditions which interfere with the implementation of the changes envisaged.

Permanent Health Education needs to be understood as a process linked to the daily life of services, and not as a mere offering of courses, lectures or training. The proposal for the Health Training Quadrilateral, presented by Ceccim and Feuerwerker (2004), reinforces the

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link between education, management, attention and social control. This construction presupposes the participation of workers in identifying needs, the involvement of management in creating institutional conditions, the approximation of educational activities to the demands of attention and the consideration of the needs of users.

PHE professional qualification involves not only updating technical knowledge, but also developing critical capacity, interdisciplinary dialogue, reflection on work processes and building responses to the needs of the population. Educational actions can contribute to improving communication between professionals, strengthening teamwork and promoting the integrity of care. However, such outcomes depend on institutional conditions that enable learning to be turned into effective practice.

For health institutions, the findings discussed point to the need to integrate the evaluation of educational actions into institutional planning. This involves diagnosing needs, setting measurable objectives, selecting appropriate methodologies, monitoring results and using the information produced to reorganise practices. The evaluation should not be of a purely bureaucratic or supervisory nature, but should be an instrument for reflecting on and improving work processes.

In the case of the Ismael Alexandrino Pinto State Polyclinic, located in São Luis de Montes Belos/GO, the discussion presented may support reflections on the planning and monitoring of educational activities carried out in specialised services. However, it is stressed that the institution constitutes the context which motivated the investigation and is not an empirical research area. Therefore, this study does not allow it to be claimed that educational actions carried out in the service produced changes in the performance of professionals or in the outcomes of care.

As a scientific contribution, research systematizes elements that can guide the construction of institutional evaluation strategies, especially as regards learning, retention and knowledge transfer. It also demonstrates that the analysis of results must take into account individual, pedagogical and organisational conditions, avoiding interpretations that solely blame workers for difficulties related to the structure and organisation of services.

Among the limitations is the bibliographic nature of the research, which has not allowed direct follow-up of practitioners, the application of evaluation tools or the verification of changes in the work processes of a specific institution. The scope of the results is also dependent on the bases consulted, the descriptors, the deadline and the criteria for selecting the publications. This is compounded by the heterogeneity of the studies examined, which address

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different educational strategies and training contexts, and which are not always directly related to SUS's Permanent Health Education policy.

Given these limitations, it is recommended that future research develop empirical and longitudinal studies in different health services, following professionals at different times after educational activities. Such investigations will be able to verify the persistence of knowledge, the conditions for its application and the impact on work processes. Studies comparing educational strategies, developing specific assessment tools and deepening the participation of workers and managers in identifying educational needs are also needed.

It is concluded that evaluating the actions of Permanent Health Education means understanding the path between the identified need, constructed learning, retention of knowledge and its transfer to professional practice. Immediate learning is an important step, but it does not represent, in isolation, the proof of results. The evaluation needs to take into account the specific conditions for the application of knowledge and the institutional responsibilities in promoting change.

Thus, Permanent Health Education achieves greater consistency when it is integrated into the work process, linked to service needs and accompanied by continuous evaluation mechanisms. In addition to verifying the performance of educational activities, it is necessary to identify the extent to which they contribute to professional development, improvement of practices and qualification of care, reaffirming the commitment to the integrity of care and to the principles of the Unified Health System.

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