Project-Based Learning: Pedagogical Perspectives for Higher Education Health Courses

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ABSTRACT

Introduction/Objectives: Project-Based Learning (PBL) is a teaching approach that engages students in practical and challenging projects. Students are exposed to situations that reflect the real work environment, preparing them to face the complexities and nuances of the healthcare field. The objective of this article is to reflect the teaching-learning process using ABPj. **Methodology:** Reflective study on the teaching-learning process using ABPj, by authors who have theoretical-practical experience of using the methodology in different health teaching scenarios, with an approach to pedagogical foundations; applicability in higher education health courses; development and acquisition of skills presented by students and implementation of ABPj. **Results/Conclusion:** The implementation of this methodology for the teaching-learning process is effective in higher education health courses, which are continually challenged to provide qualified professionals to solve complex and multifaceted problems present in society. The job market requires professionals capable of using innovative and technological strategies to solve global health problems. It is concluded that ABPj proves to be an innovative, dynamic and flexible pedagogical methodology, which provides critical reflection, develops various skills: communication, leadership, management, integration, teamwork and enables constant adjustments during the teaching-learning process, taking into account to the needs of students and the demands of professional health practice.

KEYWORDS

Project-based learning. University education. Health. Interdisciplinary education. Professional skills.

1

Aprendizagem Baseada em Projetos: Perspectivas Pedagógicas para Cursos Superiores de Saúde

RESUMO

Introdução/Objetivo: A Aprendizagem Baseada em Projetos (ABPj) é uma abordagem de ensino que engaja os estudantes em projetos práticos e desafiadores. Os estudantes são expostos a situações que refletem o ambiente real do trabalho, preparando-os para enfrentar as complexidades e nuances do campo da saúde. O objetivo deste artigo é refletir sobre o processo de ensino e aprendizagem com o uso de ABPj. **Metodologia:** Estudo reflexivo sobre o processo de ensino e aprendizagem com o uso de ABPj, pelas autoras que possuem vivência teórico–prática do uso da metodologia em diversos cenários de ensino em Saúde, com abordagem na fundamentação pedagógica; aplicabilidade em cursos superiores de saúde; desenvolvimento e aquisição de habilidades apresentadas pelos estudantes e implementação da ABPj. **Resultados/Conclusão:** A implementação desta metodologia para o processo de ensino aprendizagem é eficaz em cursos superiores da saúde, que são continuamente desafiados em prover profissionais capacitados para a resolução de problemas complexos e multifacetados presentes na sociedade. O mercado de trabalho exige profissionais aptos a utilizar estratégias inovadoras e tecnológicas na resolução de problemas globais de saúde. Conclui-se que a ABPj é uma metodologia pedagógica inovadora, dinâmica e flexível, que proporciona a reflexão crítica, desenvolve diversas habilidades: comunicação, liderança, gestão, integração, trabalho em equipe e possibilita ajustes constantes durante o processo de ensino aprendizagem, atendendo às necessidades dos alunos e às demandas da prática profissional em saúde.

PALAVRAS-CHAVE

Aprendizagem baseada em projetos. Ensino superior. Saúde. Educação interdisciplinar. Habilidades profissionais.

Aprendizaje Basado en Proyectos: Perspectivas Pedagógicas para Cursos de Salud de Educación Superior

RESUMEN

Introducción/Objetivo: El aprendizaje basado en proyectos (ABP) es un enfoque de enseñanza que involucra a los estudiantes en proyectos prácticos y desafiantes. Los estudiantes están expuestos a situaciones que reflejan el entorno laboral real, preparándolos para enfrentar las complejidades y matices del campo de la salud. El objetivo de este artículo es reflexionar sobre el proceso de enseñanza-aprendizaje utilizando ABPj. **Metodología:** Estudio reflexivo sobre el proceso de enseñanza-aprendizaje utilizando ABPj, realizado por autores que tienen experiencia teórico-práctica en el uso de la metodología en diferentes escenarios de enseñanza de la salud, con un enfoque de fundamentos pedagógicos; aplicabilidad en cursos de salud de educación superior; desarrollo y adquisición de habilidades presentadas por los estudiantes e implementación de ABPj. **Resultados/Conclusión:** La implementación de esta metodología para el proceso de enseñanza-aprendizaje es efectiva en carreras de educación superior en salud, que son continuamente desafiados a proporcionar profesionales calificados para resolver problemas complejos y multifacéticos presentes en la sociedad. El mercado laboral requiere profesionales capaces de utilizar estrategias innovadoras y tecnológicas para resolver problemas de salud globales. Se concluye que la ABPj demuestra ser una metodología pedagógica innovadora, dinámica y flexible, que proporciona reflexión crítica, desarrolla diversas habilidades: comunicación, liderazgo, gestión, integración, trabajo en equipo y permite ajustes constantes durante el proceso de enseñanza-aprendizaje, teniendo en cuenta las necesidades de los estudiantes y las demandas de la práctica profesional de la salud.

PALABRAS CLAVE

Aprendizaje en base a proyectos. Enseñanza superior. Salud. Educación interdisciplinaria. Habilidades profesionales.

2

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1 Introduction

Healthcare education faces the constant challenge of preparing professionals who are competent, up-to-date, and able to cope with the complexity and constant demands of healthcare evolution. In this context, Project-Based Learning (PBL) has emerged as a promising pedagogical approach, offering an active and engaging methodology that emphasizes the practical application of theoretical knowledge (CORDEIRO; COUTO, 2022; GOMES *et al*., 2020).

PBL is a pedagogical approach that involves students in practical and challenging projects where they are encouraged to investigate, analyze, and solve real-world problems. This methodology allows students to take an active role in their learning, work in teams, and apply their knowledge to develop viable solutions. This not only strengthens their understanding of concepts and theories, but also promotes the development of essential skills for professional practice, such as critical thinking, problem-solving, and teamwork.

For Bender (2014), PBL is characterized by a profound and transformative teaching and learning experience based on the concept of learning by doing. Teamwork is challenged based on significant issues and problems that arise in the real world, to stimulate the solution of these problems in a way that is applied to the reality exposed or experienced.

In the context of health courses, the PBL is relevant because it provides contextualized learning in which students are exposed to situations and challenges that reflect the real work environment, preparing them to face the complexities and nuances of the health field and to develop a holistic and interdisciplinary view of users' problems and needs. The PBL also promotes a patient-centered approach, encouraging students to consider the social, emotional, cultural, and clinical dimensions involved in the care and treatment of individuals (Andrade *et al*., 2021; Gomes *et al*., 2020).

Thus, stimulating critical thinking and problem-solving is one of the greatest benefits of this methodology, as students are encouraged to question, analyze, and evaluate different approaches and solutions to complex problems based on real-life situations. This enables them to make informed decisions and seek innovative alternatives, thereby expanding their decision-making skills.

The PBL also fosters curiosity, creativity, innovative thinking, and the search for knowledge, leading to the exploration and deepening of topics related to the projects, as well as the search for unconventional solutions and exploring new approaches to health challenges, thus contributing to meaningful and lasting learning.

This pedagogical approach also provides an environment conducive to the development of socio-emotional skills, such as empathy, respect, and interpersonal skills,

4

which are crucial when dealing with patients and their families. Studies point to the potential of PBL to develop verbal and written communication skills, negotiation, leadership, and conflict resolution (CIPOLLA, 2016; SALES *et al*., 2020). These skills are critical for health care professionals, as interprofessional collaboration is essential to the delivery of integrated, quality care.

The ability to promote student motivation and engagement are also aspects that should be considered when using this teaching method. By working on authentic and meaningful projects, students have the opportunity to apply their knowledge in real-life situations, which increases the perceived relevance of learning (OLIVEIRA *et al*., 2020; Silva; Tavares, 2010). This creates a sense of purpose and connection to professional practice, which motivates students to actively engage in the learning process.

However, although the potential benefits of PBL in professional education are relevant, stimulating, and responsive to the real needs of the health care field, it is important to highlight the challenges and practical considerations involved in its implementation.

There is no consensus in the literature about the PJBL methodology and its applicability in health courses, which is why we developed this reflective study on the subject. There are many authors who point out the challenges of using PJBL, generally because they are studies that evaluate or describe specific research scenarios and are therefore very much oriented to the characteristics of these institutions.

The text is the result of reflections on the teaching and learning process with the use of PBL by the authors, who have theoretical and practical experience in using the methodology in different health teaching scenarios. Given the existing gap in the literature on reflective studies, with an approach to the applicability of the methodology in question, we present this manuscript with the aim of reflecting on the teaching and learning process with the use of PBL, with an approach to the pedagogical foundation; applicability in higher health courses; development and acquisition of skills presented by students; implementation of PBL, and finally, our conclusions on the entire reflective manuscript and lessons learned in the training of health professionals.

2 Pedagogical Foundations

The principle of PBL is meaningful learning, where the student is at the center of the learning process through practical and challenging projects that reflect real-life situations (Bender, 2014; Severo, 2020).

In the context of PBL, students are challenged to investigate, analyze and solve real-world problems, apply their theoretical knowledge in a practical and interdisciplinary way,

5

develop authentic projects that provide opportunities to apply multidisciplinary skills and knowledge, resulting in the acquisition of competencies necessary for professional practice.

The development of projects establishes links between theoretical concepts learned in the classroom and their relationship to reality, which is provided by the challenge of solving problems. The PBL methodology encourages students to memorize information and theoretical content while challenging them to apply these concepts to everyday life.

According to Silva *et al*. (2018), by engaging in projects, students are encouraged to search for information, analyze relevant data sources, and deepen their knowledge of the topic at hand. This stimulates critical thinking, intellectual curiosity, and the ability to solve problems independently, promoting autonomous learning and the development of research skills.

GPAj promotes active and contextualized learning; students are encouraged to explore different perspectives, make informed choices, work collaboratively, resolve conflicts, and make decisions. According to Valenga *et al*. (2019), in addition to these skills, it promotes the development of socio-emotional skills such as effective communication, teamwork, and problem-solving.

From this perspective, this type of learning promotes interdisciplinary, the integration of knowledge and skills from different disciplines, as well as the interconnection and complementarity of related concepts and content (OLIVEIRA *et al*., 2020; Silva; Tavares, 2010). This approach promotes a holistic and comprehensive view that reflects the reality of professional practice in health care, where collaboration between different specialties is fundamental.

Japiassu (1976) emphasizes that interdisciplinary is recognized by the intensity of exchanges between students and the synergy of disciplines within the same proposal, rescuing human unity and promoting the transition from subjectivity to intersubjectivity. Thiesen (2008) reflects on the nature of human culture, the role of the school, and the human being as an agent for the transformation of society. Therefore, interdisciplinarity is a contemporary movement that transcends disciplinary boundaries and promotes a more integrative and dialectical vision in the construction of knowledge and pedagogical practice.

Fazenda (2008), when dealing with the interdisciplinary nature of the practice of knowledge, presents us with some requirements necessary for its application in the act of teaching: it is necessary to articulate knowledge; to have intentional action in pedagogical practice, in other words, to have the intention of teaching something to someone, or to a group; and to learn because, in this context, it is necessary to research to build knowledge. In this way, the author considers education to be an interdisciplinary practice, capable of forming the individual in the context of the whole, and this practice is easily applied in active teaching methodologies, which guide pedagogical activity with the articulation of various types of

6

knowledge and sciences.

The same author conceptualizes interdisciplinarity as the relationship between different areas of knowledge, encompassing a common object of study, which presents characteristics of the most diverse domains, related to a theme. The aim of interdisciplinarity is for all students to learn a concept that is integrated and applied in various areas, and this characteristic fits very well with the implementation of the PBL methodology (FAZENDA, 2011).

Carneiro (2015) describes interaction as exchange and dialog in pedagogical practice. Japiassu (1976) considers collective and participatory learning, in a pedagogical space that values the ideas and opinions of all those involved, built through the articulation of knowledge, promoting transdisciplinary practice. This practice is considered innovative when carried out using the PBL methodology in the construction of projects, especially in the area of health, as it can effectively articulate and construct knowledge in a global context.

In general, health areas have challenging themes and depend on other knowledge from a wide range of areas, which interact with each other, as well as being associated with other areas of knowledge.

As a teaching methodology, PBL is aligned with the demands and challenges of contemporary society, promoting training to deal with complex and constantly changing situations, as well as stimulating adaptability, flexibility, and creativity.

2.1 Applicability to Higher Health Courses

In health courses, PBL has proven to be highly effective for training professionals, offering opportunities to experience real and complex situations related to professional practice, as well as promoting training and education in a comprehensive and contextualized way to face the challenges of professional practice (ANDRADE *et al.*, 2021).

This methodology is commonly used in the formation of interprofessional teams in the health area. Students from different disciplines, such as medicine, nursing, physiotherapy and pharmacy, can work together on projects that address complex cases, clinical challenges and management situations. This approach allows students to learn to collaborate effectively, share knowledge and develop a more comprehensive understanding of interprofessional teamwork.

The relevance of adopting this methodology in teaching in the health area is mainly characterized by the complexity of the challenges and problems faced by professionals when they graduate. By teaching real problems and project-based solutions, health students can

7

develop critical thinking, problem-solving, and decision-making skills, as well as the ability to deal with the demands and uncertainties inherent in professional practice.

PBL allows students to apply their theoretical knowledge and practical skills in concrete projects that simulate the real working environment in the health area or, even more effectively, in real problems identified in the practice scenario and applied to the methodology for solving the problem.

This approach provides contextualized practical-theoretical learning, in which students are exposed to authentic situations and challenges, developing a deeper and more comprehensive understanding of the concepts and practices in the field.

In this context, Santos *et al*. (2019a) state that this methodology can be applied in association with various disciplines, allowing students to broaden their interdisciplinary understanding through collaborative practice.

The application of PBL encourages students to solve health problems in an integrated way, with the patient at the center of care. In this way, students are challenged to consider the patient's perspective and understand the importance of comprehensive care; they are encouraged to reflect on the patient's social, emotional, and cultural dimension, preparing them for a more humanized practice centered on individual needs (BARROS *et al*., 2021; GOMES *et al*., 2020).

Also, noteworthy is the development of communication and teamwork skills, which are fundamental to professional practice in the health sector. By working on collaborative projects, students learn to communicate effectively, negotiate, listen to different perspectives, and resolve conflicts. They are thus prepared to interact positively and constructively with teammates and patients (PASCON *et al*., 2022).

However, it is important to emphasize that applying PBL in health courses requires proper curriculum planning, the integration of active teaching-learning methodologies, and teacher training (SEVERO, 2020). Collaboration between teachers, the structuring of challenging projects, and the creation of spaces for reflection and feedback are fundamental elements for the successful adoption of the methodology in this specific context.

The development of health projects through the PBL allows students to apply their theoretical knowledge practically, developing decision-making and problem-solving skills, as well as evaluating complex problems and relating clinical health care to community-related problems (PASCON *et al*., 2022).

PBL can be applied in the development of health research projects, in which students are guided to develop research in a wide variety of settings, such as communities, schools, hospitals, health centers, and social scenarios of vulnerability, thus enabling research (PEREIRA *et al*., 2017).

8

In health courses, PBL can be applied to the creation of projects to improve quality and patient safety. Students can be challenged to identify specific problems related to the quality of care and develop improvement strategies. These projects allow students to apply quality management principles, process analysis, and teamwork to improve the safety and effectiveness of patient care (SANTOS *et al.*, 2019b).

PBL is commonly applied in health courses through the resolution of community projects. Students are challenged to identify health needs in a given community and develop interventions that address these needs. In this sense, awareness campaigns can be organized, preventive health services offered, or community education programs developed. These projects promote students' engagement with the community and encourage a public health approach in their professional training. Applying PBL to problem situations involving health education is very conducive to acquiring knowledge and developing skills (Pascon *et al.*, 2022).

When using the PBL methodology in health courses, Maciel *et al.* (2022) proved the effectiveness of the teaching and learning process due to the interaction between teachers and students throughout the course of the project, highlighting autonomy, innovation, and collaboration as skills acquired during problem-solving.

By choosing to use the PBL, teachers are free to propose different educational projects to students, according to the proposed content and teaching-learning objectives.

The PBL is characterized by active learning, with students carrying out studies and research autonomously, building knowledge in a constant back and forth movement in theoretical-practical relationships. During the construction of the proposed educational project, they develop various skills, achieving not only the learning objectives, but also acquiring interrelated knowledge.

For didactic purposes, the chart below (chart 1) lists teaching situations/projects and learning objectives aimed at implementing educational projects, based on reflections on the lessons learned and their applicability for teachers in training health professionals.

9

Chart 1. Learning objectives, according to PBL, for health projects

| TYPES OF PROJECTS	LEARNING OBJECTIVES
Real situations experienced	To equip students to solve real problems, based on the context experienced.
Simulated situations	To enable students to make decisions in future real-life situations.
Research projects	Encourage students to look for appropriate references
Community projects	Exercise teamwork; Implement collaborative solutions.
Educational projects	Develop solutions aimed at the target audience; Promoting product innovation.
Case studies	Identifying and prioritizing specific problems; Promoting clinical and critical thinking.

Source: Prepared by the author.

Reflecting on the teaching situations/projects and learning objectives directed towards the implementation of educational projects in table 1, it is necessary to emphasize that, in addition to achieving the learning objectives, the students developed interrelated knowledge, autonomy in the decision-making process and various skills to face the challenges of everyday professional life.

2.2 Skill Development and Acquisition

When applied in all its phases, the PBL promotes the development and acquisition of various skills in students, namely: integration of knowledge, areas, and disciplines; people management; individual and community care management and management of social aspects, involving the individual and the community; affective, interpersonal, and socio-emotional communication; teamwork, conflict resolution, and problem-solving; and team and project leadership. Figure 1 shows the skills acquired by students when they use the PBL in detail.

10

Figure 1. Skills acquired by students using the PBL methodology
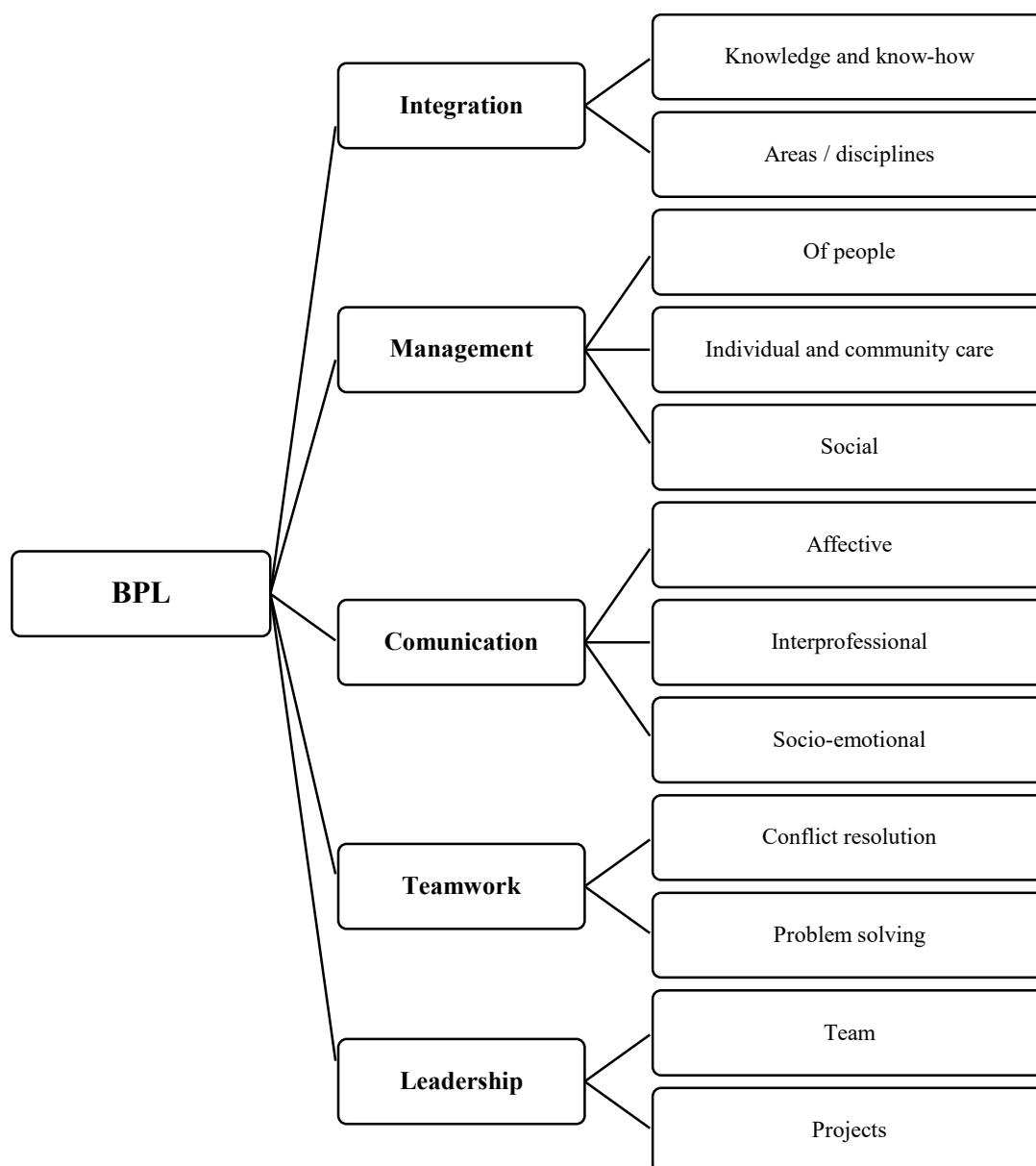
Source: Prepared by the author.

PBL has a significant impact on the development of students' skills, preparing them comprehensively for professional practice. One of the main advantages of this approach is its emphasis on the practical application of theoretical knowledge, which allows students to develop practical skills relevant to the health field and other related fields (AZEVEDO *et al*., 2017; SILVA *et al*., 2022).

Through PBL, students have the opportunity to hone their critical thinking skills, which are key to analyzing information, evaluating evidence, and making informed decisions in the health context. They are encouraged to reflect on different approaches, consider multiple perspectives, and develop innovative solutions to complex problems (PASCON *et al*., 2022).

11

Thus, in addition to critical thinking, PBL promotes the development of problem-solving skills. In this sense, Santos *et al*. (2019c) state that by facing real challenges in projects, students are encouraged to identify and analyze problems, search for relevant information, and apply effective strategies to find viable solutions. This strengthens their ability to deal with the most diverse situations in a creative and adaptable way.

This pedagogical practice also has a positive impact on the development of teamwork skills. By working on multidisciplinary projects, students learn to collaborate, share responsibilities, communicate effectively, and value the contributions of each team member. These skills are essential for professional practice in health care, where interprofessional collaboration is an everyday reality (CRESTANI, 2023; PASCON *et al*., 2022).

Another skill developed is effective communication. By participating in projects, students are encouraged to articulate their ideas, express their thoughts clearly and precisely and communicate appropriately with different audiences, including peers, teachers, and patients (CRESTANI, 2023; VALENGA *et al*., 2019). This communication skill is crucial for establishing therapeutic relationships and for conveying information in an understandable and empathetic way.

PBL promotes the development of leadership skills. By working on projects, students have the opportunity to take on leadership roles, coordinate tasks, motivate the team to make responsible decisions. These experiences enable them to be effective leaders in the healthcare environment, promoting team engagement and the pursuit of quality results. This is very relevant in the educational context of health-related areas, since leadership plays a fundamental role in carrying out specific procedures that are conducted in everyday hospital, clinical, and similar environments.

Moreira (2019) and Crestani (2023) emphasize that, in addition to technical and practical skills, PBL contributes to the development of socio-emotional skills. In this sense, students learn to manage time, deal with pressure for results and outcomes, adapt to different situations and work in dynamic and stressful environments. These socio-emotional skills are fundamental for dealing with the complexity, uncertainty, and emotional demands of professional healthcare practice.

Interdisciplinary integration plays a key role in PBL, allowing students to explore the connections between different disciplines and promote an integrated approach to problem-solving. In the field of health, where collaboration between professionals from different areas is essential, PBL offers a valuable opportunity to integrate knowledge and skills in a synergistic way (SILVA *et al*., 2018).

By involving students in multidisciplinary projects, the PBL encourages the exchange of knowledge and perspectives between different areas of health, such as nursing, medicine, physiotherapy, psychology, occupational therapy, speech therapy, dentistry, and other related fields. This allows students to understand the importance of interdisciplinarity in addressing complex health problems and to develop collaboration and teamwork skills.

12

PBL also offers a methodology for improving interprofessional communication. By working together on projects, students have the opportunity to strengthen their communication skills, learn to express themselves clearly and effectively, and understand the specific language and vocabulary of each area of knowledge (GARCÊS *et al*., 2018). This is essential for effective communication between health professionals in an interdisciplinary environment.

Interdisciplinary integration, within this approach, allows students to understand the complexity and complementarity of the different areas of knowledge involved in patient care. They can explore the interrelationship between the biological, psychological, social, and cultural aspects of health, promoting a holistic and comprehensive view of the patient, family, and community.

Interdisciplinary integration in the PBL also contributes to the training of more competent and flexible health professionals. By working with colleagues from different areas, students learn to value the diversity of perspectives, recognize the expertise of each area of knowledge, and collaborate in the search for integrated solutions. This prepares health professionals for a constantly evolving work environment and for solving complex and multifaceted problems (OLIVEIRA; MATTAR, 2018).

The PBL promotes respect between the different health professions. By developing interprofessional projects, students have the opportunity to learn about and value the role of each profession, overcoming stereotypes and differences. This facilitates collaboration and teamwork in future professional practice.

However, to promote interdisciplinary integration, it is necessary to foster a learning environment that favors interaction between students from different areas, disciplines, and knowledge (SALES *et al*., 2020). This can be achieved through interdisciplinary working groups, team discussion activities, and projects that require the participation of professionals from different areas. A culture of collaboration between teachers in the construction and implementation of the curriculum is essential for effective learning opportunities.

3 Implementing the PBL

Implementing PBL is challenging and requires paradigm shifts for educators and educational institutions, from the perspective of the student; the teacher; curriculum planning, institutional support, and the creation of educational policies that support, regulate, and oversee the practice of PBL.

PBL requires a student-centered approach, with less emphasis on the passive transmission of knowledge and a focus on the active construction of knowledge through practical projects (SILVA; LEAL, 2021). This transition may require a change in mentality and the adoption of new teaching strategies.

13

Implementing PBL requires, as a priority, proper curriculum planning. It is necessary to identify which content and skills will be addressed through projects and how these projects will be integrated into the existing curriculum. This involves aligning the learning objectives, defining the projects, allocating resources and developing realistic timetables.

For the proper development and execution of this methodology, institutional support is required. It is essential that educational institutions provide adequate support and resources for the successful implementation of PBL. This includes the availability of appropriate physical spaces, access to the necessary materials and equipment, technical and administrative support, as well as the training and qualification of the educators involved.

Time management of the teaching and learning process is challenging for the implementation and execution of the PBL. Practical and complex projects can require a considerable amount of time to complete. It is therefore essential to plan the timetable properly, define milestones and intermediate stages, and ensure that there is sufficient time for reflection, review, and presentation of the results.

Implementing PBL requires a trained and engaged teaching team. Educators need to be familiar with the principles and strategies of PBL and possess facilitation, guidance, and feedback skills. In addition, collaboration between teachers is essential for the integration of interdisciplinary projects (MOREIRA, 2019).

The PBL requires an ongoing commitment and adequate resources to ensure its effective implementation and continuity. This includes updating projects, reviewing and adapting the curriculum, professional development for educators, and regular evaluation of the effectiveness of the PBL in relation to the learning objectives.

Learning assessment presents specific challenges in the development of the PBL methodology, due to the dynamic and contextualized nature of this approach. Traditional assessment, based on standardized tests, is not suited to the learning process and the skills developed by students through practical projects (OLIVEIRA *et al*., 2023).

It is necessary to adopt assessment strategies that are aligned with the methodological principles of the teaching and learning process of PBL. In this context, formative and continuous assessment throughout the project provides monitoring of the teaching and learning process through feedback. Feedback can be provided by teachers, teammates, and practitioners, allowing a process of continuous learning improvement to take place.

The strategies of self-evaluation, evaluation by teammates, and teacher evaluation are pertinent to developing the continuous process of learning and collaboration to complete the project. According to Santos (2020), as well as assessing students' individual performance, it is essential to assess their ability to collaborate effectively, share responsibilities, communicate clearly, and resolve conflicts.

14

Evaluating the results achieved in projects is also an essential aspect of this pedagogical practice. Students should be assessed because of the solutions developed, the recommendations presented, and the final overall quality of the project. This evaluation can be carried out through oral presentations, written reports, public exhibitions, or evaluation by professionals in the field of practice.

However, it is important to remember that assessment should not be limited to outcomes alone, but should be procedural, aiming to understand students' development throughout the teaching and learning process. This can be done through individual records, reflective journals, and progress reports that allow students to demonstrate their progress, the challenges they have faced, and the lessons they have learned (AZEVEDO *et al.*, 2017).

Grotta and Prado (2018) highlight as an assessment challenge the need for flexibility in monitoring projects with specific objectives, different methodologies, and different outcomes. It is therefore important to adopt flexible evaluation approaches, adapted to the projects and the needs of the students, in order to adequately capture the learning process and the skills developed.

Teacher training is a fundamental aspect of meeting the challenges of assessment in this methodology and ensuring a fair and meaningful analysis of the results and learning objectives obtained. Teachers must be prepared to use appropriate assessment strategies, provide constructive feedback, and balance the assessment of procedural aspects with the results achieved.

4 Conclusion

PBL is a relevant and effective pedagogical approach to training health professionals. By engaging students in practical and challenging projects, it promotes meaningful, contextualized, and interdisciplinary learning.

This pedagogical practice fosters the development of essential skills such as critical thinking, problem-solving, teamwork, effective communication, and leadership. It also prepares students to meet the complex and ever-changing challenges of professional health care practice.

The implementation of PBL in health courses requires careful planning aimed at integrating content and promoting interdisciplinarity. Teachers play a fundamental role in guiding and facilitating the learning process. It is therefore essential to train teachers through continuous support, institutional support and the adoption of appropriate assessment strategies to ensure the quality and effectiveness of the pedagogical approach.

15

PBL offers a unique opportunity for students to develop the skills needed for professional practice in the health sector. By working in groups to solve real-life practice projects, students apply their theoretical knowledge in a relevant way, promoting the consolidation and articulation of learning. In addition, this practice encourages the development of technical and socio-emotional skills, promotes empathy, ethics, and respect, and prepares students for a humanized professional practice.

It is important to emphasize that PBL in health courses requires a continuous commitment to improving students' education as well as monitoring learning outcomes. This methodology is dynamic and flexible, benefiting from applied pedagogical reflection and constant adaptation to the needs of students and the demands of professional practice.

In this way, it is hoped that PBL will continue to be implemented, improved, and studied, contributing as an innovative teaching and learning methodology in health.

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16

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18

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19