

Active methodologies and academic training: the construction of games in health practice in primary care

Metodologías activas y formación académica: la construcción de juegos en la práctica sanitaria en atención primaria

Metodologias ativas e formação acadêmica: a construção de jogos na prática de saúde na atenção básica

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Abstract

This study aimed to describe the relationship between game development and the teaching-learning process through active methodologies in health education. It is an experience report, based on the dialectical research method, conducted between October and November 2025 in a primary care unit in Niterói (RJ), where students, a teacher, and a preceptor created and implemented a board game about hypertension and diabetes mellitus for users of the HIPERDIA program aged between 60 and 80 years. The game creation process by the students themselves promoted protagonism, meaningful learning, teamwork, and knowledge consolidation, while its application within the community generated high acceptance, active participation, and horizontal exchange of knowledge. The discussion highlighted that gamification and educational games are consolidated as effective strategies for engagement, knowledge retention, and the development of clinical competencies, aligning with Paulo Freire's precepts by breaking with vertical models of information transmission. Final considerations indicate that the successful experience, although limited by its specific nature and lack of formal validation, reinforces the viability of lightweight and low-cost technologies in transforming vocational training and the relationship with the community.

Descriptors: Nursing; Active Methodology; Scientific Knowledge; Meaningful Learning; Professional Training.

Resumen

Este estudio tuvo como objetivo describir la relación entre el desarrollo de juegos y el proceso de enseñanza-aprendizaje mediante metodologías activas en educación para la salud. Se trata de un informe de experiencia, basado en el método de investigación dialéctica, realizado entre octubre y noviembre de 2025 en una unidad de atención primaria en Niterói (RJ), donde estudiantes, un docente y un preceptor crearon e implementaron un juego de mesa sobre hipertensión y diabetes mellitus para usuarios del programa HIPERDIA de entre 60 y 80 años. El proceso de creación del juego por parte de los propios estudiantes promovió el protagonismo, el aprendizaje significativo, el trabajo en equipo y la consolidación del conocimiento, mientras que su aplicación en la comunidad generó una alta aceptación, participación activa e intercambio horizontal de conocimientos. La discusión destacó que la gamificación y los juegos educativos se consolidan como estrategias efectivas para la participación, la retención del conocimiento y el desarrollo de competencias clínicas, alineándose con los preceptos de Paulo Freire al romper con los modelos verticales de transmisión de información. Las consideraciones finales indican que la experiencia exitosa, aunque limitada por su naturaleza específica y la falta de validación formal, refuerza la viabilidad de las tecnologías ligeras y de bajo costo para transformar la formación profesional y la relación con la comunidad.

Descriptores: Enfermería; Metodología Activa; Conocimiento Científico; Aprendizaje Significativo; Formación Profesional.

Resumo

O estudo objetivou descrever a relação do desenvolvimento de jogos no processo de construção do ensino-aprendizagem por meio de metodologias ativas na formação em saúde. Trata-se de um relato de experiência, fundamentado no método dialético de pesquisa, vivenciado entre outubro e novembro de 2025 em uma unidade de atenção básica de Niterói (RJ), onde discentes, docente e preceptora construíram e aplicaram um jogo de tabuleiro sobre hipertensão arterial e diabetes mellitus para usuários do programa HIPERDIA com idade entre 60 e 80 anos. O processo de criação do jogo pelos próprios estudantes promoveu protagonismo, aprendizagem significativa, trabalho em equipe e sedimentação de saberes, enquanto a aplicação junto à comunidade gerou elevada aceitação, participação ativa e troca horizontalizada de conhecimentos. A discussão evidenciou que a gamificação e os jogos educativos consolidam-se como estratégias eficazes para engajamento, retenção de conhecimento e desenvolvimento de competências clínicas, alinhando-se aos preceitos de Paulo Freire ao romper com modelos verticalizados de transmissão de informações. Considerações finais apontam que a experiência exitosa, embora limitada por seu caráter pontual e ausência de validação formal, reforça a viabilidade de tecnologias leves e de baixo custo na transformação da formação profissional e da relação com a comunidade.

Descriptores: Enfermagem; Metodologia Ativa; Conhecimento Científico; Aprendizagem Significativa; Formação Profissional.



Introduction

The teaching-learning process centered on the figure of the teacher and the passive role of the student is a reality in the formative process in education. This verticality of knowledge transmission, as described in the work 'Pedagogy of the Oppressed', written by Paulo Freire¹, invites us to reflect on the performance of the roles of educator and student traditionally exercised in our society.

Furthermore, it proposes not only that we critique this educational format but also reflect on new possibilities for educational development that could alter this situation. The optimization of the roles played in education (teacher/student) should occur in such a way that the process enhances the potential of the actors involved, thus expressing a new way of promoting education.

Education presents variations in its intended function, as well as depending on the objective to be achieved. It can be understood as a process with a saving bias for a society; as the perception of maintaining an existing society; and, furthermore, as an understanding of social transformation. In this perspective, Luckesi^{2,22} states:

"Education within a society does not manifest itself as an end in itself, but rather as an instrument for social maintenance or transformation. Therefore, it needs assumptions, concepts that underpin and guide its path. The society within which it exists must possess certain guiding values for its practice".

Active methodologies, which apply active learning, provide opportunities for students to perform better in assessment processes and reduce failure rates in various undergraduate courses³. Therefore, creating elements that can provide resources for the application of course content would be a way to promote meaningful learning, providing students with mechanisms for constructing their own knowledge, with direct mediation from the teacher. Thus, the application of games would be the path to achieving this.

When considering games, they are understood as a resource that presents a specific functionality. Vasconcellos, Carvalho, and Araújo⁴, in their work "The Game as a Health Practice," point out that games are a creation by and for a society. Therefore, they present a defined cultural and functional context. This work also discusses the application of games for communication, social participation, and the construction of a social space for dialogue in health.

Therefore, promoting active teaching practices among undergraduate students has a promising approach to empowering them in their knowledge-building practices, since their proactivity drives the consolidation of their knowledge. Furthermore, the exchange of knowledge between the undergraduate's professional training process and contact with the community advances as an innovative purpose in health education practices, as the student is willing to address the community's needs and generate mechanisms for better utilization of their knowledge, thus transforming their reality.

Given the above, the need to operationalize, through concrete actions, the theoretical principles that underpin active methodologies in health education becomes evident. To this end, the present study defined objectives

that guide everything from the identification of playful strategies to the practical application of board games in primary care, as described below. The aim was to describe the relationship between the development of games and the teaching-learning process.

In this sense, the relevance of the study to healthcare is evident insofar as, for the quality of care provided to the external public, the training process must provide students with skills, resourcefulness, and empower them to have a broader view of the possible problems in the practical field. The use of active methodologies through the development and application of board games in primary care with themes of systemic arterial hypertension and diabetes mellitus corroborates clinical practice, facilitating and dignifying the care process; promotes humanization in care; efficiently allows for the allocation of efforts and resources, since the practice of concepts occurred during classes; brings students closer to the population through contact and attempts to articulate theory and clinical practice to equip individuals with the tools to understand their health-disease process.

This topic is related to several themes defined in the Research Priorities Agenda of the Ministry of Health. Among them are Axis 4 - Development of technologies and innovation in health, in theme 4.8 - Mapping and development of health technology management models for healthcare facilities; and Axis 8 - Work management and education in health, in theme 8.4 - Analysis of the potential of technical education in health for the SUS (Brazilian Public Health System).

Methodology

This is a study of an experience report based on observations made between October and November 2025 at a primary care unit in a municipality in the State of Rio de Janeiro. This practical experience highlighted the complexity of the relationships between teaching, service, and community, revealing the need for a theoretical framework capable of critically understanding these articulations. Therefore, the present investigation was structured using a methodological approach that would allow for a dialectical and systematic deepening of the foundations and practices underlying the observed formative processes. In this sense, the research proposed here will be conducted using the dialectical research method, since to deeply understand the object of study it seeks to examine its various aspects, relationships, and connections. It is descriptive and analytical in nature, aiming to provide tools for deepening the understanding of the concepts and practices that underpin the meaning of the formative processes that integrate and articulate teaching, service, and community. Since this is a predominantly theoretical research project, its methodology will be based on the use of bibliographic and documentary sources.

Student participation in this project is voluntary and involves no expenses or financial compensation. The research may present a minimal risk related to discomfort that the student might feel during the development and application of the games for their practice and in the health



education and guidance process. If the student feels discomfort and requires immediate intervention, their participation in the project will be interrupted and, if they so wish, they may be referred to the professor responsible for the unit's psychology department, without any financial burden on the participant, in accordance with item II.3.1 of Resolution No. 466/2012⁶.

Experience Report

Since the proposal focuses on the use of active methodologies in the construction of a board game at a time when technology is advancing exponentially, the project's viability is real and tangible in several aspects.

The proposed approach suggests a dialogue between the academic training reality and a new way of learning, in which the student emerges as an active participant in their knowledge construction process, thus leveraging their study practice. Dynamically, the students, together with the professor responsible for the project and the preceptor of the unit where the practice took place, constructed a board game for application in the HIPERDIA group at a primary care unit in the municipality of Niterói. In practice, the activity was structured with the application of theoretical content and the creation of materials using readily available, low-cost items, including some recycled materials. In this way, the project also fosters environmental awareness among its participants.

Another element to be listed in this item concerns the subsequent use of these games not only by the students who developed them, but also with the expansion into other academic training classes, periods, and, in the future, new subjects and themes. As a lightweight technology, the result can be identified in the short and medium term. The results aim to generate direct impacts not only on the social development of the students, but also on the academic community and society, which benefits an individual with quality training and empowerment in the content and care techniques. The activity took place between October and November 2025, at a primary care unit in the municipality of Niterói, with a group of users served by the unit's hypertension and diabetes mellitus control program.

Initially, the idea emerged from college classes, where the aim was to make health education practices more dynamic for this group of users. Thus, the organization of a scavenger hunt for these individuals was conceived. The creation of a board game emerged as a strategy to guide this practice, being easy to apply and replicate in other groups and/or units. Furthermore, standardization would facilitate the identification of flaws and adjustments to be made. Two meetings were held with groups of approximately 20 participants each. The target audience consists of people aged 60 to 80 years, served at the primary care unit in the municipality of Niterói, duly monitored for hypertension/diabetes through the HIPERDIA program.

The patients were divided into 2 groups, in which six-sided dice were rolled to determine the number of spaces to advance. Along the board, numerical values or clues to questions about risk factors, care, myths, and truths about hypertension and diabetes could be found. The team that

reached the end of the board fastest was declared the winner. Participation was active and lively. All participants received some kind of gift related to the care of these diseases. At the end of the activity, breakfast was offered to everyone in the group.

For the activity's organizing team, the experience of implementing the instrument was described as a challenge in the entire process: from creating the questions and designing the game board to finding partners, obtaining permission from the municipality, and finally administering the instrument.

Feedback from the community involved was positive regarding the dynamics of content presentation and socialization among participants, indicating a fruitful and satisfactory exchange. We understand that this practice was only a timid step towards new experiences and trends in teaching mechanisms and instruments, leaving as a legacy the perception of new research in this area. The need for further experiences in this context to expand this practice and refine this instrument is understood.

Discussion

The results obtained from the experience reported here, combined with the theoretical framework that underpinned it, allow us to advance the reflection on the potential of active methodologies, mediated by the construction of games, as a powerful tool in academic training in health and in the promotion of educational practices within the scope of primary care. Firstly, data collected from the most recent literature indicate that the use of active methodologies, especially gamification and educational games, has become established as an effective strategy to promote engagement, knowledge retention, and the development of clinical skills among students in the health field⁷. A recent meta-analysis involving randomized clinical trials demonstrated that serious (digital) games significantly improve the knowledge (Hedges' $g = 0.75$), confidence (Hedges' $g = 0.73$), and performance (Hedges' $g = 0.49$) of nursing students, offering a valuable alternative to traditional methods⁸. Although focused on digital games, this robust evidence corroborates the qualitative findings of this report, in which the student-monitors reported greater proactivity and consolidation of knowledge throughout the board game creation process.

Additionally, a systematic review conducted by Paula et al.⁹ identified that gamification strategies have been applied with a focus on professional qualification, engagement, and meaningful learning, especially through digital games, simulations, board games, and playful dynamics, highlighting the strengthening of teamwork and the improvement of technical and behavioral skills. These findings resonate directly with the experience lived here: during the construction and application of the board game on hypertension and diabetes, the students involved practiced collaborative work, the active search for knowledge, and the translation of scientific concepts into language accessible to the elderly population.

Specifically, regarding board games as a tool for health education in primary care, a study by Prado, Macuch,



and Milani¹⁰ concludes that these artifacts represent an effective and comprehensive approach to health promotion, going beyond the mere transmission of knowledge and favoring the integrality of care. Voltarelli et al.¹¹ further emphasize that active methodologies have proven effective in promoting patient safety and developing critical and practical skills for safe care, encouraging student protagonism. The experience described confirms these assertions: the active participation of users of the HIPERDIA program, with enthusiasm and exchange of knowledge, demonstrates the potential of the playful approach to break with vertical and authoritarian models of health information transmission, aligning with the precepts of Paulo Freire.

Another relevant aspect discussed in contemporary literature concerns the challenges and gaps that still exist. Both the review by Paula et al.⁹ and the study by Santos Cordeiro et al.¹² point out that most studies lack longitudinal evaluation, validation of impact in the pedagogical context, and replicability of the methods used, in addition to the need for teacher training and overcoming institutional resistance. These limitations are echoed in the present report, which is configured as a pilot experience, of short duration (October-November 2025) and without objective indicators of measurable long-term impact. However, precisely for this reason, the report acquires relevance by demonstrating the viability, acceptability, and immediate transformative potential of the strategy, paving the way for more robust future research.

It is important to highlight that the experience described here aligns with the literature that advocates for closer collaboration between university, service, and community as a structuring axis of health education. The integration of teaching, service, and community, experienced in the partnership with the basic health unit in Niterói and the HIPERDIA program, not only allowed for the practical application of theoretical knowledge but also brought students closer to the concrete reality of users, contributing to a more humanized, critical, and contextualized education. This movement is in line with the national curricular guidelines for health courses and the research priority agenda of the Ministry of Health¹³.

Final Considerations

The experience of constructing and applying a board game as an active methodology strategy in the training of nursing students and in the health education of users with hypertension and diabetes in primary care in Niterói allowed us to achieve the proposed objectives and generated reflections that are now summarized. It became evident that the process of creating the game by the students themselves was as, or even more, formative than its application. The process of research, content selection, language translation, material creation, and testing

promoted student protagonism, meaningful learning, and the development of skills such as teamwork, creativity, and critical thinking. This finding aligns with the literature, which indicates that active learning methodologies, when well-structured, improve academic performance and professional confidence^{3,8}.

Regarding the application of the game within the community, a high degree of acceptance, active participation, and enthusiasm was observed among the elderly users, indicating that play-based learning is a powerful tool for overcoming communication barriers and promoting health education horizontally and enjoyably. The question-and-answer dynamic, combined with healthy competition, facilitated the retention of information about risk factors, care, and management of chronic diseases, generating an environment for the exchange of knowledge between professionals, students, and the community.

However, some limitations need to be made explicit. This is an experience report, without a methodological design that would allow for an objective assessment of the intervention's impact on users' levels of knowledge, attitudes, or practices, or even on students' content retention. Furthermore, the experience was specific and short-term (two meetings), making it impossible to evaluate the sustainability of the learning or its replicability on a large scale. The lack of formal validation of the game by expert judges also constitutes a weakness to be overcome in future iterations. Considering the above, it is recommended that future experiences move towards quasi-experimental or intervention studies, with control groups, pre- and post-test measures, and follow-up to more rigorously measure the effectiveness of the board game in promoting health literacy among users with chronic diseases. It is also suggested that investment be made in validating the content and appearance of the game by experts, according to consolidated methodologies in the field of educational technology in health, in addition to adapting it for other populations and contexts (children, adolescents, other territories). Equally important is the need to foster teacher training and institutional support so that gamification and educational games are incorporated as regular practice and not just as isolated initiatives in the curriculum of health courses.

In short, the successful experience reported here, which took place between October and November 2025, reinforces the premise that it is possible, through lightweight, low-cost, and highly creative technologies, to transform professional training and the relationship with the community. It leaves as a legacy the conviction that breaking with the banking model of education is not only necessary but perfectly feasible, requiring only the ethical and political commitment of educators, students, and administrators to a more just, healthy, and participatory society.

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