






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## **Mixing Popular Educations and Gamification for the construction of a digital platform for the (trans)formation of care for people with obesity: the Teiker experience**

**Misturando Educação Popular e Gamificação para construção de uma plataforma digital de (trans)formação do cuidado da pessoa com obesidade: a experiência Teiker**

### **Abstract**

**Introduction:** Continuing health education is a strategy that requires innovative educational practices and can be structured using the Freirean approach supported by the principles of Popular Education, which can guide the training and qualification processes of health professionals and managers regarding the care of people with obesity. **Objective:** This article aims to share the experience of using popular education and gamification in the development of a digital health training platform within Primary Health Care in Paraíba. **Method:** This is an experience report resulting from the CNPq/MS/SAS/DAB/CGAN Call No. 26/2018. The modules were constructed over the course of in-person meetings to align the proposal and appropriate the themes. With the emergence of the COVID-19 pandemic, weekly virtual meetings were held. **Results:** The results show the *Teiker experience*, a word inspired by the act of caring, derived from the English *take care*, but using phonetics of indigenous origin, which are presented based on the principles of Popular Education: *Dialogue*, initially formed between art and science with the objective of transforming health care aimed at people with obesity; *Problematization* and *Shared Construction of Knowledge*, considering that the experience was designed for various areas of knowledge: nursing, nutrition, physiotherapy, physical education and community health agents; Lovingness, in the sense of exercising autonomy and reflecting on the process of liberation of those who propose to learn about the care of people with obesity; *Emancipation* and *Autonomy*, using gamification, which is based on the Read-Acts (LerAtos) experience, in which the participant is naturally creative and is called Read-Author (LeiAutor), encouraging him to “read” himself, the other, and the world, and to lead his transformation through this reading. **Conclusion:** It is expected that the experience will enable reflections on the care of people with obesity and provide effective care practices.

**Keywords:** Obesity. Gamification. Primary Health Care. Professional training.

## Resumo

**Introdução:** A educação permanente em saúde é uma estratégia que demanda uma prática educativa inovadora, podendo ser estruturada com a utilização da abordagem freiriana apoiada nos princípios da Educação Popular, que pode orientar processos de formação e capacitação de profissionais e gestores de saúde no que concerne ao cuidado das pessoas com obesidade. **Objetivo:** Este artigo tem como objetivo compartilhar a experiência da utilização da educação popular e da gamificação na elaboração de uma plataforma digital de formação em saúde no âmbito da Atenção Primária em Saúde na Paraíba. **Método:** Trata-se de um relato de experiência fruto da Chamada CNPq/MS/SAS/DAB/CGAN nº 26/2018. Os módulos foram construídos ao longo de encontros presenciais para alinhamento da proposta e apropriação dos temas e com o surgimento da pandemia de covid-19, encontros virtuais, semanalmente. **Resultados:** Os resultados mostram a experiência *Teiker*, palavra inspirada no ato de cuidar, derivada do inglês *take care*, mas utilizando a fonética de origem indígena, os quais são apresentados a partir dos princípios da Educação Popular: *Diálogo*, inicialmente formado entre arte e ciência com o objetivo de transformar o cuidado em saúde voltado às pessoas com obesidade; *Problematização* e *Construção compartilhada do conhecimento*, considerando que experiência foi idealizada para diversos núcleos do saber: enfermagem, nutrição, fisioterapia, educação física e agentes comunitários de saúde; *Amorosidade*, no sentido de exercitar autonomia e refletir sobre o processo de libertação de quem se propõe aprender a respeito do cuidado da pessoa com obesidade; *Emancipação* e *Autonomia*, utilizando a gamificação, que tem como base a experiência *LerAtos*, em que o participante é naturalmente criativo e é denominado *LeiAutor*, incentivando-o a “ler” a si próprio, o outro, e o mundo, e a protagonizar sua transformação por essa leitura. **Conclusão:** Espera-se que a experiência possibilite reflexões acerca do cuidado da pessoa com obesidade e proporcione práticas efetivas de cuidado.

**Palavras-chave:** Obesidade. Gamificação. Atenção Primária à Saúde. Formação profissional.

## INTRODUCTION

Continuing health education is a strategy that demands innovative educational practices, addressing the health needs of individuals, populations, sector management, and social control in health. Its purpose is to develop professional practices anchored in the problematization of reality, the prior knowledge of workers, meaningful learning, and the transformation of previously established practices.<sup>1,2</sup> Thus, it contributes to ensuring that the training of health workers occurs in a dialectical relationship with health care practices.<sup>3</sup>

For this dialogue to occur in conjunction with the reflections provoked by the professionals' experiences, there is an incentive to use, in continuing health education, a Freirean approach supported by the principles of Popular Education (PE).<sup>4,5</sup>

This approach refers to a process of recognizing and addressing health problems through dialogue with the working classes, respecting their cultures, and recognizing their knowledge.<sup>4</sup> This fosters the ability to renew work procedures based on reflection on daily experiences in management, care, and social control, problematizing these experiences, and collectively developing new ways of managing and providing care. From this perspective, the need for changes in the care of people with obesity is evident.<sup>3</sup>

According to the World Health Organization (WHO), obesity is defined as an abnormal or excessive accumulation of fat that poses a health risk.<sup>6</sup> Its increased prevalence is attributed to various biopsychosocial processes, involving the political, economic, social, and cultural environment, and not solely to individual choices. This poses a challenge for health managers and professionals as they attempt to understand how these multiple factors interact and how they could contribute to encouraging educational practices for the care of people with obesity.<sup>7-9</sup>

Thus, some strategies have been used to reach a larger number of people and promote greater interaction between health professionals and the public. With the advent of new information and communication technologies, it is possible to instigate, engage, and motivate people to better understand health-related content through gamification.<sup>10</sup>

The term "gamification" encompasses the application of game design elements to the construction of experiences not characterized as games, adding playfulness and epic meaning to them. This approach aims to stimulate engagement among those involved in professional or everyday activities and to reinforce certain positive patterns such as social interaction and productivity in these activities.<sup>11</sup> It is a user experience *design approach* that enables changes in access to information and contributes increasingly to the development of knowledge, values, and attitudes, helping to create a new culture during a learning process.<sup>11,12</sup>

It is a phenomenon that stems from the individual's ability to motivate action, solve problems, and strengthen learning in different areas of knowledge and life, as it has become a form of entertainment with potential reach across virtually all segments of the population.<sup>13</sup> In the healthcare field, some studies address the use of gamification as a methodological practice, an educational tool to aid in healthcare, and an interactive approach to content delivery.<sup>14-16</sup>

Given the above, this study sought to combine the principles of Popular Education and Gamification to develop diverse content for inclusion on a digital platform, contributing to the training of managers and healthcare professionals in the care of individuals with obesity. To this end, the Read-Acts (LerAtos) method of gamifying education professionals' training was extended to healthcare professionals. The Read-Acts (LerAtos) method transforms participants in an educational experience through playfulness and awareness of the social role of knowledge. This method develops in individuals a special ability for liberating reading of themselves, others, and the world, transforming them into reader-actors (LeiAtores) who perform entrepreneurial actions in caring for

themselves, others, and the world, and into Reader-Authors (LeiAutores), who, in addition to performing an attitude of care, create new tools and practices for this care in a contextualized, meaningful, and multiplying way within a community.<sup>17</sup>

Thus, this article aims to share the experience of using principles of popular education and gamification in the development and selection of content for a digital training platform for managers and health professionals in Paraíba within the scope of Primary Health Care.

METHODOLOGICAL PATH

This is an experience report on the development of content for a virtual platform that combines the principles of popular education with the practice of gamification in the (trans)training of health managers and professionals regarding the care of individuals with obesity in primary care in the state of Paraíba. This work is part of the Research, Extension, and Training Project for Managers and Workers of the Unified Health System (SUS) for the Prevention, Diagnosis, and Treatment of Obesity in the Population of Paraíba, related to the CNPq/MS/SAS/DAB/CGAN Call No. 26/2018, Confrontation and Control of Obesity within the SUS.

The experience of uniting Popular Education and gamification was experienced by a team composed of researchers from three universities: Federal University of Paraíba (UFPB), State University of Paraíba (UEPB) and Federal University of Campina Grande (UFCG), Cuité and Campina Grande *campuses*. The members joined the project through institutional links already established with the coordinators, through the Institutional Scientific Initiation Scholarship Program (PIBIC), master's and doctoral students, extension projects and research centers and were divided into content creators and programmers.

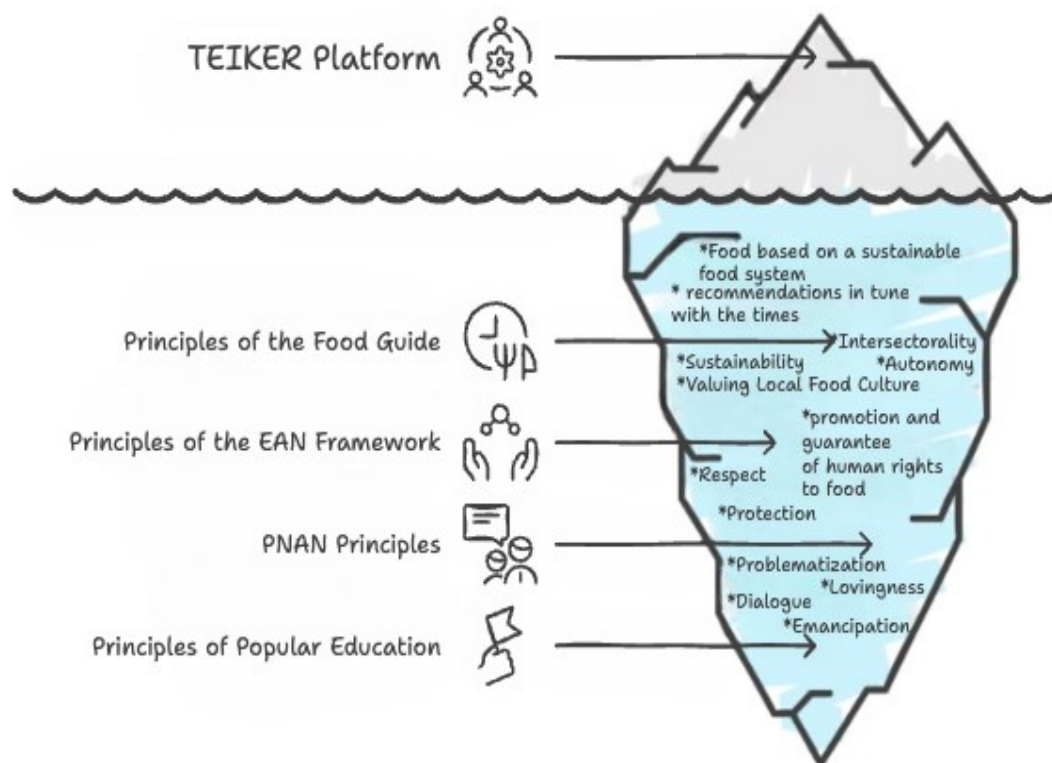
The content creators were responsible for creating and systematizing the themes required by the aforementioned CNPq and Ministry of Health notice, and they were divided into modules (Figure 1), 11 for primary care health professionals and six for managers, while the creation of the platform *layout* and implementation of the content was the responsibility of the programmers.

Figure 1. Distribution of modules on the platform.

	CONTENTS	
	MANAGERS	PROFESSIONALS
	<div>M O D U L E S</div> <div>1- Public Policies and PNAN 2- Financing 3- Networks and Care Lines 4- Social Control 5- Care Planning 6- Advocacy</div>	<div>1- Organization of Care and Networks 2- Health Planning 3- Obesity Management 4- Health Promotion 5- Health at School 6- Grow Healthy 7- Health Academy 8- Food and Nutrition Education 9- Collective Approaches 10- Emancipatory Cuisine 11- Behavioral Approach</div>

Each module was constructed observing the following principles of Popular Education: Dialogue, Loving-kindness, Problematization, Shared Construction of Knowledge and Emancipation, all present in the National Policy for Popular Education in Health within the scope of the SUS.<sup>18</sup> The theoretical construction of the modules was anchored in official materials such as the *Food Guide for the Brazilian Population* (GAPB), the National Food and Nutrition Policy (PNAN) and the Food and Nutrition Education Reference Framework for Public Policies, as well as articles and scientific productions that address the topic. These theoretical references support the construction of the platform (Figure 2).

Figure 2. Theoretical basis for construction of the platform.



The structure of the modules was developed based on several questions, such as: *How will this be presented? What will the audience's interpretation of the approach be throughout the modules? What strategies can be used to improve participants' understanding and reflection?*

Initially, four in-person meetings were held to align the proposal and discuss the topics: the first was to present the project; the second was a training session facilitated by the IT team to introduce digital tools to the content creators; and the remaining meetings were held to discuss ideas and provide support. However, with the emergence of the covid-19 pandemic, all follow-up was conducted virtually, weekly, with everyone participating, while the programmers inserted the modules into the platform (Figure 3).

**Figura 3.** Composição centesimal, teor de mineral e características físico-químicas do caqui (*Diospyros kaki*) armazenado por três meses e um ano a -18 °C <sup>1</sup>. Rio de Janeiro, 2018.

	Content Creators' Actions	Programmer Actions
1st phase Planning	<div>Project Presentation;</div> <div>Modules Division;</div> <div>1° Version of Contents;</div> <div>Workshops on using the platform and digital resources;</div>	<div>Project Presentation;</div> <div>Platform Creation;</div> <div>Workshops on using the platform and digital resources;</div>
2nd phase Implementation	<div>Weekly online meetings;</div> <div>Modules Revision;</div> <div>Discussions to strengthen the theme;</div> <div>Corrections: spelling, language adequacy, mission, texts</div>	<div>Weekly online meetings;</div> <div>First implementations on the platform;</div> <div>Discussions to strengthen the theme;</div> <div>Adjustments to the implementation on the platform;</div>
3rd phase Adjustments and Review	<div>Testing all modules;</div> <div>Refinement, corrections, adaptations, final suggestions;</div>	<div>All additional content on the platform;</div> <div>Bug fixes, links, texts, on the platform;</div>

The content teams were assembled according to their affinity for the topic, and each week a module was presented by those responsible and received contributions from all researchers.

## RESULTS AND DISCUSSION

The decision to share an experience that combines popular education and gamification in the construction of a digital health training platform did not prove to be a simple task to solve, but it revealed the multiple possibilities of combining knowledge that until then seemed distant.

The results were based on the principles of Popular Education. Therefore, the description begins by highlighting *Dialogue*, present from the project's inception and essential for a transformative learning process. The first highlight should be given to the dialogue between art and science, with the ultimate goal of transforming health care for people with obesity, enabling managers and health professionals to reformulate their concepts and practices and enabling the expansion of what would be merely a treatment technique and achieving the meaning of care.

*Teiker* emerged, inspired by the act of caring, derived from the English word "*take care*" and using phonetics of Indigenous origin. Throughout the development of the platform, the meaning of *Teiker* was sought, prioritizing dialogue based on the establishment of horizontal relationships, in which social and educational practices are based on the understanding that there is no greater or lesser knowledge, but rather different types of knowledge, as Freire points out:

Dialogue is an existential requirement. And, if it is the encounter in which the reflection and action of its subjects are solidified, addressed to the world to be transformed and humanized, it cannot be reduced to an act of depositing ideas from one subject to another, nor can it become a simple exchange of ideas to be consumed by the exchangers.<sup>19</sup>

Teaching and learning require the awareness that we are unfinished and incomplete beings, the need to practice listening and openness to new things, and critically reflect on our practices. A willingness to engage in dialogue, humility, generosity, and the joy of teaching and learning are also fundamental characteristics for learning to occur. This strengthens the conviction that change is possible, even if reality presents itself as something seemingly already given and immutable.<sup>20</sup>

Through the dialogue and interrelationship between Popular Education and Gamification, it was also possible to use the principles of *Problematization and Shared Knowledge Construction* as the basis for the *Teiker experience*. With this in mind, the experience was designed for managers and healthcare professionals from various fields: nursing, nutrition, physiotherapy, physical education, community health agents, among others. Collaborative interprofessional practice was therefore considered essential to healthcare from the platform's conception to achieve comprehensive care, enabling more affective and problematizing learning.<sup>21</sup>

The interdisciplinary experience of the content creators for the collective construction of the *Teiker platform* allowed them to problematize obesity beyond its theories and biological implications, expanding the discussion in a way facilitated by gamification in the search for developing interactive and dynamic strategies to approach the topic with the participants.

The principle of *lovingness* exposed by Freire<sup>22</sup> and brought by the *Teiker experience* aims to work education as an act of love and courage, aiming at the liberation of the student and allowing affection to become a basic element in the search for health, that is, stimulating autonomy so that subjects are encouraged to construct their own knowledge.

Exercising autonomy and reflecting on the liberation process for those who intend to learn about caring for people with obesity is extremely important. But liberation from what, specifically? In this case, when the *Teiker platform was conceived*, among other issues, it was born with the intention of deconstructing, together with health managers and professionals, a series of factors that have been ingrained since their training. The idea that people are obese because they don't take care of themselves, that only those who are careless and lack willpower are obese, are understandings that influence the way we treat individuals and that need to be deconstructed. Therefore, the use of the term "liberation" is very applicable in this context.



The combination of a multidisciplinary team with ideas of liberating education (enabled by love), seeking to empower and encourage critical reflections based on the target audience's lived reality while recognizing existing practices, raised the question: "How can we stimulate autonomy and learning through digital means?" This brought to the table two more of the fundamental principles of PE: *Emancipation* and *Autonomy*. To achieve both principles, all the others mentioned must be implemented so that individuals can act critically and consciously as protagonists in the health decision-making processes in which they are involved.<sup>23</sup>

Seeking to promote autonomy and emancipation, the *Teiker experience* aims to innovate teaching and learning through gamification. It is based on the Read-Acts (LerAtos) experience, in which participants are naturally creative and are called Read-Author (LeiAutor). The goal is to encourage them to "read" themselves, others, and the world (understanding content and interpreting it critically) and to lead their own transformation through this reading, in the form of Acts (attitudes/practices in caring for people with obesity). Read-Authors (LeiAutores), upon accessing the platform, will experience three experiences: (1) Empowerment of the presented content; (2) Virtual Missions throughout the modules; and (3) Community Missions, where they will be able to put into practice what was shared during the journey.

Therefore, it was necessary to study and delve into topics beyond the healthcare field. While developing the modules, the content creators had to learn, under the guidance of the IT team, how to create scripts for videos, understand the correct ways to use cameras for filming, familiarize themselves with video editing programs and applications, and utilize various audiovisual resources, among other skills that were necessary along the way.

The development of a Virtual Learning Community facilitates the collaborative construction of knowledge to support interaction and sociability during healthcare treatment. To achieve this, resources that converge into a collaborative construction environment and integrate playful learning tools, such as mobile technologies and educational games, can be used.<sup>24</sup>

Rodrigues et al.<sup>25</sup> report the experience of preceptor training with residents, using technological resources to empower students in their learning. To this end, they used an *online platform* to organize activities, with content divided into modules, forums, and videos, aiming to initiate the continuing education process for healthcare professionals. Along the same lines, Barros et al.<sup>26</sup> showed that using gamification with nursing students, based on the experience of playing a game, resulted in knowledge creation and greater independence.

Echeverria<sup>27</sup> also identified the potential of using this format during the pandemic, given its flexibility in carrying out activities, in addition to enabling interaction between audiences and facilitating the correction and updating of content.

The modules "dialogue" with each other, triggering an unfolding of content that can be integrated by Read-Authors (LeiAutores) in the construction of ideas generated throughout the digital platform's journey. Thus, knowledge and the strategy for implementing actions are formed through reflection and practice of what is understood to be appropriate for reality. The EP acts precisely by problematizing this reality, establishing a meeting between popular culture and Science, utilizing the principles of the Policy itself, such as dialogue, critical reflection, and shared construction of knowledge.<sup>4</sup>

*Teiker* platform used a special gamification strategy to motivate managers and healthcare professionals, making the proposed activities and missions more enjoyable, using this resource as a differentiator to generate greater engagement.



Using gamification on the *Teiker platform* was one of the biggest challenges encountered, initially due to the lack of skills of the healthcare team members, and also because it required different approaches to each module to make the learning process dynamic and thus promote enchantment and engagement among Read-Authors (LeiAutores). The modules combine PE and gamification through a new application strategy, presenting content that provokes reflection on the paradigm shift introduced throughout a healthcare training path.

In this context, to make the content more dynamic and interactive, games such as memory games, quizzes, crossword puzzles, and others were included at the end of some modules. These different elements were used in gamification to provide immediate *feedback (positive or negative)*, leading players to reflect on their practices. This *feedback* can contribute to better cognitive processing and experiential learning, thus enhancing the use of gamification as a successful intervention strategy.<sup>28</sup>

Following the understanding of gamification, the "Discussion Forum" feature was used to enhance interaction and reflection among Read-Authors (LeiAutores). This space can foster dialogue and understanding of different realities, while also encouraging the development of ideas and strategies to overcome problems. It is noteworthy that these forums were named "Plaza Bench," "Cashew tree," and "Avocado Tree," all with the aim of fostering a "welcoming environment" among Read-Authors (LeiAutores) for sharing experiences and encouraging the formation of support networks, in addition to providing opportunities for listening and acceptance among participants.

Nunes, Franco & Silva<sup>29</sup> used the Discussion Forum strategy in digital format with healthcare professionals and observed that participants showed interest in understanding each other's positions and perceptions regarding the topic being discussed. In the same context, Rezende & Cordeiro<sup>30</sup> emphasize the importance of using discussion forums as a method that enables the exchange of experiences and the selection of viable solutions among health counselors in the municipality located in the Zona da Mata region of Minas Gerais.

Another strategy was the creation of spaces within the platform that used artistic and cultural expression as drivers of dialogue, called "My Care in Verse" and "My Dream as a Manager/Professional." The former aims to provide Trans(formation) participants with the opportunity to express their perspectives on care for people with obesity, in the form of poetry or musical parody, encouraging reflection on actions aimed at the population and reintroducing the principles of dialogue and autonomy.

Regarding "My Dream as a Manager/Professional," the goal was to encourage Read-Authors (LeiAutores) to share their concerns regarding the organization of obesity management in their municipality, prioritizing more humane, empathetic care that respects the whole person, which embodies the essence of the principle of loving kindness. The collection of these verses and dreams will lead to the production of the book "*Poetry of Care*," allowing Read-Authors (LeiAutores) to be co-authors of the publication.

At the end of the modules, specific missions were proposed, focusing on the content covered. These missions would encourage overcoming challenges and could be carried out by Read-Author (LeiAutor) or the multidisciplinary team of which he or she is a member. Among the missions, a proposal to create a popular gallery stands out, with the goal of identifying talents from the region, be they poets, singers, healers, artists, artisans, and others. In this space, the inclusion of records such as interviews or recordings will be encouraged to integrate the *Teiker Health Museum*, which will be composed of diverse talents from the *Teiker community*, creating an environment for the free expression of thought and art.

Mattos et al.<sup>31</sup> report on the experiences of students taking the Popular Education and School course at Vila dos Poetas, a life-school in the interior of Ceará. Residents write poems inspired by their daily lives,

make crafts, and take them to exhibitions, fairs, and conferences. The authors report that this informal approach provides a more expressive and employable learning experience, both in terms of common sense and academic achievement.

The use of popular education in dialogue with gamification, both mediated by art, demonstrated significant potential for (trans)formation in the understanding of health and forms of care for people with obesity, given that changes were already observed within the platform development team. Throughout the process, paradigm shifts were observed, in ways of thinking about and delivering healthcare, beyond the biological aspects prioritized during professional training, and beyond the traditional roles of the research team during the development of the *Teiker* platform and the delivery of this training.

The entire journey to build the *Teiker platform* was marked by countless challenges that made the process full of twists and turns. Building a virtual platform, with multiple hands, that aims to stimulate the (trans)formation of people regarding their way of thinking and acting, doesn't follow a straight line. One of the biggest challenges was encouraging everyone on the team, including content creators and programmers, to read and delve deeper into the topic. By bringing all the modules together in a single virtual space, it was necessary for the reasoning about the content to be fluid and meaningful, and this was no easy feat, given the number of people involved. To minimize communication and content distortions, all produced material was reviewed by the project coordinator.

Another challenge that was not fully overcome concerned the involvement of the team of programmers who were part of the computer science course with the "health team." The weekly discussions to develop the modules rarely included the computer science students, perhaps because they believed that such dialogue would not "serve" their professional development. This is a characteristic of the positivist and highly technical training of undergraduate programs. The weekly meetings, in addition to organizing the production of technical content, also mediated human relationships that were crucial for the development of emotional skills and abilities, but were not highly valued by the programming team, which limited itself to "programming the platform."

In deciding to share an experience building a virtual platform anchored in popular education and gamification, the key lesson is that teaching-learning processes involving human beings are always unfinished and can be improved and adjusted. For the principles of popular education to make sense in the (trans)formation process of healthcare managers and professionals, it first needed to make sense and transform the development team itself. However, this transformation does not occur uniformly or similarly, nor does it occur among healthcare managers and professionals.

## CONCLUSION

Considering the complexity of building effective and humanized care lines for obesity, the *Teiker platform* proposed developing strategies aimed at providing paradigm shifts from the perspective of the principles of popular health education mediated by gamification.

The proposed methodology is expected to reach managers and healthcare professionals within the context of continuing education, enabling reflection on the multiple factors that contribute to the emergence and persistence of obesity. This will enable participants to become multipliers of practices aimed at obesity care, tailored to the specific needs of each municipality.

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### Contributors

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