FUNDAMENTALS FOR APPLYING GAMIFICATION IN PHYSICAL EDUCATION FROM A REFLECTIVE AND CRITICAL PERSPECTIVE

FUNDAMENTOS PARA APLICAR LA GAMIFICACIÓN EN EDUCACIÓN FÍSICA DESDE UNA PERSPECTIVA REFLEXIVA Y CRÍTICA

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Abstract

Gamification in Physical Education (PE) has become increasingly popular in recent years, demonstrating its positive effects on a variety of variables. However, there are few texts that address this pedagogical model from a reflective perspective. The aim of this article is to carry out a critical narrative review in which seven scientific and pedagogical principles are established in order to implement gamification with learning guarantees. In addition, a series of theoretical and practical considerations are presented, which can be considered by PE teachers in order to integrate gamification into their teaching programmes. It is intended that this manuscript may be of interest and useful to all those teachers, especially of PE, interested in applying gamification in their classes, regardless of the content being addressed. It should be remembered that any teaching approach used must be associated with the main objective of the subject, which is that students learn.

Keywords: Physical education, gamification, pedagogical model, critical reflection, student learning.

Resumen

La gamificación en Educación Física (EF) ha cobrado un gran auge en los últimos años, demostrando sus efectos positivos en diversidad de variables. Sin embargo, son escasos los textos que abordan este modelo pedagógico desde una perspectiva reflexiva. El objetivo de este artículo es realizar una revisión narrativa crítica en la que se establecen siete principios, científicos y pedagógicos, para implementar la gamificación con garantías de aprendizaje. Además, se presentan una serie de consideraciones teóricas y prácticas que los docentes de EF pueden tener en cuenta para integrarla en sus programaciones didácticas. Se pretende que este manuscrito pueda ser de interés y utilidad para todos aquellos docentes, especialmente de EF, interesados en aplicar la gamificación en sus clases, independientemente del contenido que se aborde. Es preciso recordar que cualquier enfoque de enseñanza que se utilice ha de estar asociado al principal objetivo de la materia, que es que el alumnado aprenda.

Palabras clave: Educación física, gamificación, modelo pedagógico, reflexión crítica, aprendizaje del alumnado.

Introduction

Since time immemorial, play has always been a fundamental element of human learning, allowing individuals to explore, interact with their environment, and connect with others. In the field of PE, it has been present in all educational curricula, serving as an essential teaching tool with high pedagogical potential (Klein & Beach, 2023). However, it is crucial that it is used with educational purpose and aligned with learning objectives (Kolovelonis & Goudas, 2023).

In this regard, gamification, through the use of narrative structures that students can follow, integrates play as a key element with the aim of fostering their engagement and participation, thereby enabling more memorable learning

experiences (Sotos-Martínez et al., 2024). However, in certain cases, when gamification is claimed to be used, play is not given a significant or pedagogically intentional role, becoming distorted and diluted into a series of disconnected activities that lack clear learning objectives (Kolovelonis & Goudas, 2023). Therefore, it is essential that gamification proposals are structured around well-defined objectives, without losing sight of what students are expected to learn and how they should demonstrate it.

Closely related to this, it is necessary to reflect on the reasons for implementing gamification in PE. We should aim for fun, yes, but fun with learning (Pérez-Pueyo & Hortigüela-Alcalá, 2020). In fact, this pedagogical model initially focuses on students' extrinsic motivation through the use of rewards and participant ranking (Melchor, 2012). In this sense, Pérez-Pueyo and Hortigüela-Alcalá (2021) argue that we cannot ignore the evidence regarding the transitory nature of such motivation, as students, in the medium term, tend to be cautious about the actual improvements in learning specific content. Moreover, clear dissonances may arise concerning motivation and adherence to physical activity depending on the educational stage (Trillo et al., 2018). Therefore, it is essential for the teacher to intentionally regulate and ensure that students' motivation is sustained even after the novelty effect of the proposal has worn off (Flores-Aguilar & Prat, 2018). To achieve this, both the chosen theme and the methodological structure employed must allow for meaningful connections with the other content to be developed throughout the course.

For all these reasons, the tasks proposed must be grounded in the essential principles of fostering intrinsic motivation, for which the self-determination theory is particularly relevant (Ryan & Deci, 2000). In this sense, tasks should present appropriate challenges according to students' level, thereby enhancing their perceived competence and self-efficacy.

The activities proposed must pose a challenge in themselves for the students. To achieve this, they should be aligned with the students' abilities to carry them out. This alignment allows them to reach a state of *Flow*, understood as a psychological variable that arises when a person is fully immersed in the learning process and feels a sense of control over what they are doing and why they are doing it (Csikszentmihalyi, 1990). If the student does not feel competent in performing the proposed task, the likelihood of experiencing frustration and demotivation throughout the process increases significantly (Roure & Pasco, 2023). In this sense, it is essential that motor activities be varied, flexible, adaptable to the context and to students' characteristics, and, above all, that they foster awareness of what is being learned (Grace et al., 2024). There must be a clear connection between the activities developed within the gamified structure, allowing students to become increasingly autonomous and competent in solving tasks (Fernández-Río et al., 2022; Flores-Aguilar et al., 2021). This self-regulation component is key, as it promotes both self-assessment of one's performance and adaptability to each new situation (Pérez-Pueyo et al., 2021).

Another fundamental element, often observed in gamified approaches, is the excessive level of competition. In this regard, it is important that the proposals promote student socialization, interaction with others, and the assumption of both individual and group responsibilities (Simonton & Shiver, 2021), beyond the mere competition for individual or group rewards. Excessive competitiveness in pursuing rewards or trying to outperform others can distort the learning objective and may also deteriorate the classroom climate (Kokkonen et al., 2019). Therefore, the goals and objectives of gamified proposals must be clearly defined and well-founded, with students actively involved in them. The playful component is part of the essence of gamification, but the mere act of playing should not take precedence over the intended learning outcomes. As with any other didactic approach, this learning must be assessed by the teacher, verifying to what extent gamification may, or may not, be the most appropriate teaching strategy (Pérez-Pueyo & Hortigüela-Alcalá, 2021).

Having addressed all these introductory aspects, the present article is justified by its primary objective: to conduct a critical narrative review that establishes seven scientific and pedagogical principles for implementing gamification effectively in the classroom. From this objective, several questions arise that invite reflection on the true value of gamification in PE: What aspects should be considered when implementing gamification in PE? Do the gamification proposals that are published and disseminated meet the minimum standard of goal-setting rigor? What learning outcomes does gamification produce in PE? And perhaps the most relevant and potentially controversial question: In gamification, is students' fun and entertainment prioritized over their actual learning?

Therefore, this text aims to provide a reasoned reflection on the educational aspects that should guide the implementation of gamification in PE, with the goal of ensuring that this pedagogical model meets fundamental scientific and pedagogical principles.

Why Choose to use Gamification in Physical Education?

In PE, there are various pedagogical models classified as established (Cooperative Learning, Sports Education, Comprehensive Sports Initiation, and Personal and Social Responsibility) and emerging (Sports Education, Attitudinal Style, and Health Education, among others) (Fernández-Río et al., 2016). According to this classification, gamification is considered an emerging pedagogical model (Fernández-Río et al., 2016). In any case, all of these models offer a range of educational possibilities depending on the learning objectives. The key lies in the why and the purpose of their use, for which the teacher must manage a wide variety of didactic, psychological, and motivational variables.

In the case of gamification, regardless of the narrative structure employed and the elements it includes (points/rewards, levels, challenges, badges, rankings, roles…), three higher-order elements can be highlighted. These elements must be considered in the implementation of any pedagogical model to guarantee, on the one hand, student learning, and on the other, the teacher's control over the context and the teaching process (Pérez-Pueyo et al., 2021): 1) Active student participation throughout the process and awareness of learning; 2) Development of social skills; 3) Applicability and transferability to different types of content.

1. *Active student participation throughout the process and awareness of learning*: It is necessary to ensure that students understand the narrative process framing the educational proposal, what elements will be worked on, when, how, and which motor skills are developed (Terlizzi, 2024), but, above all, to know and comprehend the learning objective. In this regard, it is essential that the student, both individually and in groups, makes decisions throughout the tasks and reflects on the learning they are acquiring (Hortigüela-Alcalá et al., 2021). If this is neglected, any fun or "apparent motivation" shown by students will be instant and superficial, lacking the rigor and depth necessary for learning to be sustained over time (Pérez-Pueyo & Hortigüela-Alcalá, 2021).

2. *Development of social skills:* In some cases, gamified proposals are primarily based on competition and/or individualistic aspects, which hinder the promotion of social relationships (Anderson, 2023). Therefore, it is necessary that the activities proposed be structured around joint challenges, where communication, dialogue, and mutual support are the fundamental tools for overcoming these challenges or tasks. However, behind this interpersonal component, individual responsibility must be ensured, both regarding task performance and the learning acquired. Sometimes, only whether the group has overcome the proposed challenge is considered, overlooking crucial aspects such as who participated, how much, and in what way (Munk & Agergaard, 2018). For this reason, care must be taken to avoid discrimination within the workgroup based on ability, as well as other issues that may arise when competition is misunderstood by students (Pérez-Pueyo et al., 2021).

3. *Applicability and Transferability to Different types of content:* One of the positive aspects of gamification is its potential for use across a wide variety of content areas. In fact, it is common for gamified proposals to address diverse curricular content. In this regard, one key element is that, regardless of the specific content, the teacher must ensure that the learning outcomes are both replicable and measurable. Indeed, beyond Physical Education, gamification can be applied to a broad range of subjects, as long as the established learning principles and objectives are respected. In this sense, it presents a valuable opportunity for interdisciplinary work with other subjects, for example, through a school-wide project. However, this versatility of the model should not result in a "totum revolutum" in which anything goes, merely presenting a series of isolated games that entertain students and thus justify the approach. Quite the opposite: a comprehensive and interdisciplinary project that incorporates gamification requires a solid, well-designed, and consensual framework that encompasses a wide range of meaningful learning experiences for students (Sebastiani & Campos-Rius, 2019).

Perhaps one of the major contradictions that exists is the perception of gamification not as a pedagogical model aimed at methodologically involving students in their own learning process, but rather as a mere strategy for entertainment, or worse, as a way to make the teacher the central figure instead of the students. In this regard, it is important to remember

that one of the main reasons gamification was introduced into the educational system was to individualize the teaching process and, as far as possible, support the self-regulation of learning by adapting to different learning paces (mi & Mäyrä, 2005; Lee et al., 2013; Vassileva, 2012).

Gamifying in PE also appears to be an effective way to consolidate previously acquired learning (Monguillot et al., 2015; Pérez-Pueyo & Hortigüela-Alcalá, 2021). In this sense, when demotivation within the class group becomes evident and student behavior requires redirection, the incorporation of dynamics inspired by video games, TV series, movies, and similar media, linked to specific narratives—can help rekindle students' motivation, as well as influence their behavior, attitudes, and personal skills (Carpena et al., 2012; Durall et al., 2012). To achieve this, it is essential not only to satisfy basic psychological needs but also to promote student autonomy through decision-making, provide constructive feedback, and foster interpersonal relationships among classmates.

Fundamental Principles for Applying Gamification in the Classroom

Once the arguments and reasons supporting the potential benefits of applying gamification in PE have been established, as well as the implicit risks that may arise when its pedagogical and didactic foundations are not well understood within the school context, the following section presents the seven fundamental principles that must be considered for its pedagogical integration in the classroom, always upholding the core premise of fostering meaningful learning.

These principles are established based on two fundamental elements. First, scientific evidence, which provides arguments and conclusions drawn from the results of various publications and classroom interventions. Second, critical reflection, advocating for the need to deliver high-quality PE that leaves no room for decontextualized proposals, perhaps entertaining, but with little or no connection to the true purpose of a subject with immense learning potential at all levels.

Fostering Students' Intrinsic Motivation Toward the Task

En In some cases, gamification proposals are based on overly superficial elements: rewards, badges, points to be earned… while neglecting the actual content to be learned and the methodological strategies to achieve it. Therefore, it is crucial to avoid the mistake of allowing the task's objective to become vague or subordinated to the attainment of secondary elements, as this can lead to a loss of students' intrinsic motivation toward the task itself, shifting their focus to aspects that are often unrelated to what is intended to be taught (Jiaopin et al., 2024). In fact, this may result in students participating solely to obtain a badge or achievement, rather than for the pleasure and satisfaction derived from overcoming the proposed challenge or activity.

For this reason, activities must always be aligned with learning objectives, which should be guided by the student's perception of self-efficacy (Lodewyk, 2018). Another fundamental aspect to consider is the potential limitations that arise when students focus solely on completing the task quickly to receive a reward, rather than performing it correctly. Therefore, student motivation must be directed not only toward task completion but also toward the quality and process of performance itself (Deci & Ryan, 1985).

Avoid Overreliance on External Rewards

Closely related to the previous principle is the potential overuse of external rewards. An excess of such rewards can lead to student demotivation in the medium term, as well as foster a culture of minimal effort, where physical and sports activities are performed out of obligation rather than for the enjoyment of movement, personal well-being, and appreciation and awareness of their benefits (De Bruijn et al., 2022). Therefore, incentives and external rewards linked to the task should be occasional, controlled, and pedagogically consistent with the teaching purpose. In this regard, it is important to keep in mind that motivation should be tied to the student's own perception of self-efficacy (Ryan & Deci, 2017). Moreover, a pedagogical model such as gamification, which is related to active methodologies (León-Díaz et al., 2023), requires that student engagement is sustained over time once the initial novelty has worn off (Pérez-Pueyo et al., 2021).

Manage Excessive Competitiveness

If competition within a gamified proposal is not controlled and moderated, it can create inequalities among students. It is essential to regulate competitiveness because, for example, students with superior physical skills or more prior knowledge may achieve better results, while those who need more support can fall behind (Smee et al., 2021). An excessively competitive approach can demotivate some students and create an atmosphere of pressure and stress within the group (Barkoukis et al., 2021). Students who do not meet the required performance levels may feel embarrassed, marginalized, or undervalued compared to their peers. Therefore, attention must be given to how groups are configured, the responsibilities of their members, how each individual's performance is ensured, and how the student's progress is measured (relative to themselves rather than compared to others) all of which are essential elements (Pérez-Pueyo et al., 2021).

Develop Appropriate Implementation Designs

Gamification requires careful planning and appropriate implementation to be effective. If game elements (such as narrative, activity linking, rewards) are poorly designed or not aligned with the educational objectives established within the learning situation or unit, they can be counterproductive to learning. For example, many proposals rely heavily (sometimes excessively) on technology, which, besides clearly limiting physical engagement, can become a real challenge in contexts with limited resources. The resources used, whether instructional, material, human, or technological, must be aligned with the motor, affective, social, and cognitive domains derived from the learning objectives (Esben & Jens-Ole, 2024). Therefore, it is necessary to reflect on and apply the principle of "less is more," understanding that a greater number of stimuli or a larger deployment of materials does not necessarily make the proposal better.

In this regard, adequacy goes beyond simply choosing the right or effective activities for certain contexts or student groups. For example, in a class where there are excessively competitive leaders who also possess a high level of motor skill, they tend to want to complete the tasks either alone or accompanied only by peers with similar abilities. Therefore, any gamified proposal aimed at generating learning and ensuring that all students achieve the established objectives must carefully consider both the narrative and the task design itself (Pérez-Pueyo et al., 2021).

Avoid Pursuing Short-Term Objectives

On certain occasions, the mistake can be made of designing gamified interventions aimed at obtaining immediate results, focusing more on students having fun during a class than on the meaningfulness of learning. Fun, of course, is an essential element in PE, but the focus on what is intended to be learned, and especially how it is learned, must not be lost (Hortigüela-Alcalá et al., 2022). It is important that any proposal in the subject is based on a solid methodology aimed at specific goals and has at least a medium-term duration. It makes little sense to carry out a variety of interventions with completely different narrative themes that focus more on completing tasks and/or earning points than on fostering understanding of the content, promoting the importance of physical activity, and encouraging the adoption of a healthy lifestyle (Montiel-Ruiz et al., 2023).

Indeed, it should not be forgotten that gamification is, or should be, a pedagogical model that aims to methodologically involve students, making them the protagonists of their own learning process. Thus, when used at specific moments throughout the course as a review or even consolidation activity (Pérez-Pueyo & Hortigüela-Alcalá, 2021), it can have high educational potential, even if the focus is short-term. However, caution is necessary regarding the achievement of positive long-term results, ensuring that the learning generated is truly verified and transferable across diverse areas and contexts.

Use Play as a Genuine Learning Tool

Play is an essential tool in the subject of PE. When applied effectively for pedagogical purposes, it can lead to significant learning outcomes in students (Mustell et al., 2024). Play, beyond "playing for the sake of playing," must be approached with coherence and rigor, especially when it is integrated into narrative structures, as is the case with gamification. If this is not taken into account, the playful elements used may overly simplify the reality and the learning objectives, which can result in a distorted understanding of the concepts and skills intended to be taught. If such simplification is high and sustained over time, it may stray from the richness of real learning experiences (Adank et al., 2024). In light of this, we should reflect

on the role that play is fulfilling, how it is associated with different stimuli and rewards, and, above all, to what extent it is useful for intrinsically motivating students toward the tasks being carried out.

In this regard, although play is an excellent learning tool in PE, we must not forget that not everything can be learned through play alone. It is necessary for proposals to have pedagogical purposes that allow students to make decisions regarding how to solve tasks and enable them to demonstrate what they have learned both individually and in groups (Ní Chróinín et al., 2024). Therefore, gamified proposals that require individual student achievement and promote collaboration and/or cooperation with peers throughout the process become a highly interesting way to engage students in their own learning journey (Sotos-Martínez et al., 2024).

Promotion of Student Autonomy and Reflection

One of the fundamental premises of quality PE is to foster student reflection on what they learn and why they learn it (Beni et al., 2021). Therefore, the number or quantity of tasks completed is less important than the conscious impact these tasks have on students. Without this process of reflection, it is impossible for students to make logical and coherent decisions, especially when motor skills are involved (Wibowo & Dyson, 2021). This directly leads to autonomy, with teachers needing to encourage students to think and act independently. It is essential that the methodological proposal is well-structured and connected, including involving students in self-assessment and peer-assessment processes (Grace et al., 2024).

In some cases, it has been observed that gamified proposals may lead to excessive dependence on the teacher (such as approving task completion, directing students to the next challenge/task, checking requirements to level up), instead of allowing students to explore and discover their own motivations and interests in physical activity. This can limit students' ability to develop self-regulation skills. Therefore, the implementation process of gamification itself should be approached from a holistic perspective, anticipating and analyzing how student and group autonomy will evolve over time (Roure & Pasco, 2023). In this regard, autonomy can be fostered through, for example, allowing students to choose the activities they want to perform, making them aware of their progress through formative feedback, teaching them to plan and reflect on the process undertaken, as well as encouraging them to take initiative in presenting tasks to others.

Theoretical and Practical Considerations for its Implementation in the Classroom

Once the fundamental principles for applying gamification in PE have been established, the following section outlines a series of theoretical and practical considerations for its implementation, with the aim of providing guidelines that can be adapted to a variety of contexts. These considerations are classified according to different areas: a) curriculum; b) resources and tools; c) teacher training; d) implementation strategies; e) inclusion; and f) sustainability.

Regarding the curriculum, it is essential to ensure proper integration of the objectives by aligning those related to gamification with the specific objectives of the subject. In this sense, it is important to be clear during the design phase whether the intention is to review or consolidate prior learning, or rather to acquire new knowledge and skills. Once this is determined, attention should be given to the planning of activities, designing a gamified structure appropriate to the students' skill level, grade, and characteristics, as well as verifying both group and individual achievements in relation to the intended learning objectives.

Regarding resources and tools, careful consideration must be given to which ones will be used and for what purpose. For example, if they involve technology, decisions will need to be made about whether an app will be used, whether portable devices will be required, or whether a specific platform will be implemented. It is important to remember that the quantity or sophistication of the technology used is not what matters most, but rather its true usefulness and accessibility, provided it is actually necessary. In fact, it should be clarified that technology is not an essential requirement for implementing gamified proposals, at least not in PE. It can certainly be beneficial, but it should never become an obstacle or an obligation that prevents teachers from successfully applying the model. As for material resources, it is always advisable that their use aligns with the didactic needs of the proposal and the characteristics of the available space, aiming for versatility and sustainability. A balance must be struck between the effort required by the teacher to prepare the materials and the potential for successful learning outcomes. Additionally, it is essential to involve students in the organization, collection, and potential uses of the resources.

Regarding teacher training, there is currently a wide and varied range of courses and seminars related to gamification. However, it is interesting to note that many of them differ significantly in both structure and content. While some focus exclusively on the use of playful activities, often isolated and lacking coherence, others are based on narrative structures inspired by video games, TV series, or movies that provide meaning and coherence to the achievement of learning objectives. What seems clear is that this diversity of approaches, many of which fall under the broad conceptual umbrella of gamification, creates uncertainty among teachers and hinders its effective implementation.

This highlights the lack of consensus and consistency regarding what gamification should be and how it should be implemented, leading to common misunderstandings such as: entertaining students through games, organizing escape rooms, or proposing various cooperative challenges. While these activities can be interesting, they deviate from the pedagogical model of gamification, even when attempts are made to justify them through a misunderstood notion of hybridization. Ultimately, this theoretical and practical mishmash does little to benefit PE. It is essential that all training related to this topic is grounded in a set of basic principles on how to implement the model, moving away from purely personal interpretations based solely on individual experience. In addition, such training should provide practical examples of its effects, benefits, and potential challenges.

Regarding basic strategies for implementation, once the intervention design is prepared, it is advisable to consider variables such as duration, the type of content to be addressed, students' motor and social performance, as well as their previous experiences with participatory methodologies. There is little value in proposing overly complex gamified structures, with intricate point systems and rewards, when students have had no similar prior experience or when the final achievement fails to generate meaningful learning in those who need it most. What is essential, however, is the application of formative and shared assessment processes from the very beginning. This involves collecting feedback from students to adjust activities based on their input, experiences, and outcomes. In this sense, beyond establishing formative feedback that helps students become aware of their learning and supports their decision-making, it is also crucial to encourage their involvement in the evaluation process itself (Barba-Martín & Hortigüela-Alcalá, 2022).

Only in this way, and starting with both individual and group self-assessments, can students become more autonomous, reflective, and critical of the processes in which they participate. In fact, especially during the initial stages of implementing gamified pedagogical structures, it is essential that teachers evaluate their own practice. This evaluation should focus on the core elements of the methodology, for example, assessing whether the intended content has truly been acquired through gamification, identifying the real added value of the approach, and/or considering whether another method might have been more effective and less demanding in terms of organization and resources. Carrying out thorough diagnostic, formative, and summative assessments, and using the data collected to reflect on the pedagogical impact of the intervention, the design implemented, and students' learning and motivation, should be the teacher's main tools for quality control. These should take precedence over social approval of the gamification approach or the apparent and momentary fun experienced by students. Fun may be occasional, but it should never be the goal of our educational work (since it is not a curricular objective). Instead, our implementation should be oriented toward the enjoyment of practice, meaningful achievement—both individual and collective, without exception or exclusion, and toward conscious, purposeful learning.

Therefore, and in connection with what has been previously stated, another essential criterion when designing gamified proposals is to ensure inclusion and accessibility. This inclusive design must focus not only on the types of tasks to be carried out, but also on the active role—at all levels—that each student can play throughout the process. To achieve this, it is necessary to consider the following questions: Will all activities be group-based? What role and responsibilities will each student have within group tasks? Which tasks will be individual? Will there be adaptations for students with difficulties? How will assessment be conducted for all of them? Reflecting on these questions is crucial when aiming to ensure the participation and success of the entire class group.

It is also important to consider the sustainability of the proposals implemented. This sustainability refers to the ability to create educational practices that are enduring, inclusive, and respectful of the context and the holistic development of students. Sustainability should also focus on promoting values such as respect and responsibility among students.

There is no point in making a great effort in preparing and designing an intervention if, afterwards, the work results are not transferable. It is important to ensure that both the resources and tools used remain available in the medium to long

term. This durability of the proposal—whether in terms of theme, narrative, content addressed, or resources employed, allows for two important things: on one hand, it fosters greater student awareness of the learning acquired; on the other hand, it enriches and deepens the learning experience lived in the classroom. It is common that, after all the organizational work involved, the gamification proposal ends without any further impact on subsequent work, appearing more as isolated entertainment over a series of sessions rather than as an integrated part of the didactic programming. Therefore, it is important to keep the activities and tools used up to date to maintain the interest and relevance of what has been worked on.

Before concluding this section, we want to emphasize the educational potential that gamification can have in PE. Currently, there are solid and well-validated interventions that show very positive results across a variety of variables such as students' emotional regulation (Pérez-López et al., 2023), reduction of anxiety (Rodríguez-Martín et al., 2022), increases in intrinsic motivation, basic psychological needs, and intention to be physically active (Fernández-Río et al., 2022), promotion of physical activity (Montiel-Ruiz et al., 2023), cooperation (Sotos-Martínez et al., 2024), and physical fitness (Mora-González et al., 2023). All of these can serve as references for other educators to apply in their own classes.

Conclusiones

The aim of this article has been to conduct a critical narrative review in which seven scientific and pedagogical principles for implementing gamification effectively in the classroom have been established. The main purpose of the text is not to undervalue gamification, but rather to provide a series of arguments that enable teachers to approach this pedagogical model with rigor and a critical perspective. The possibilities of gamification are numerous, but for its proper implementation, the basic and fundamental principles of teaching, specifically in PE, must be respected. We are at a time when countless gamified proposals are shared and disseminated across various forums and social networks. Therefore, as a professional community, we must be critical and question those practices that lean more toward mere entertainment or the prominence of the teacher rather than genuine learning. Undoubtedly, this will help elevate the status of PE and continue the unstoppable progress of this new pedagogical model, which is increasingly making its way into PE.

This document represents a significant contribution to literature, since, although there are texts that address the benefits of gamification, there are none focused on critically examining its application and implementation while offering alternatives. Therefore, it seems timely that an article of this nature is published today. While this is a descriptive and reflective article, it opens up various avenues for future research. One of these would be to specifically investigate each of the seven principles discussed, allowing for comparisons based on concrete experiences in different contexts.

We believe this article may be of interest to educators at all educational levels who wish to apply gamification across all subjects, especially in PE. It is also relevant for educational policymakers and those responsible for teacher training, enabling them to offer rigorous and evidence-based training programs. In this regard, if we truly want to continue supporting quality PE that fosters and demonstrates meaningful student learning and continues to grow to break down existing social stereotypes, it is essential to collectively reflect on the importance of the various methodological approaches employed.

Ethics Committee Statement

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Conflict of Interest Statement

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Authors' Contribution

"Conceptualization D.H.A & A.P.P.; Methodology D.H.A; Validation D.H.A. & A.H.G; Formal Analysis A.P.P.; Investigation A.H.G.; Resources D.H.A.; Data Curation A.H.G.; Writing – Original Draft D.H.A.; Writing – Review & Editing A.H.G.; Visualization

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