South American Publishing

SAP Gamification and Augmented Reality. 2023; 1:16
doi: 10.56294/gr202316

REVIEW

Gamification for well-being: applications for health and fitness

Gamificación para el bienestar: aplicaciones para la salud y fitness

Telmo Raul Aveiro-Róbalo[1], Vanessa Pérez-Del-Vallín[2]

[1]Universidad del Pacífico, Carrera de Medicina. Asunción, Paraguay.
[2]Hospital Catalina Cargol. Girona, España.

Cite as
Aveiro-Róbalo TR, Pérez-Del-Vallín V. Gamification for well-being: applications for health and fitness. SAP Gamification and Augmented Reality. 2023; 1:16. https://doi.org/10.56294/gr202316

Submitted: 12-09-2023
Revised: 25-10-2023
Accepted: 01-12-2023
Published: 02-12-2023

Corresponding Author
Telmo Raul Aveiro-Róbalo

ABSTRACT

Introduction: gamification is incorporating the elements and dynamics of the game into an educational experience, the aim is to encourage people to be more active in terms of health and physical fitness
Objective: determine the influence of gamification on people's health.
Method: a review of the bibliography was carried out using articles rescued from databases such as SciELO, Dialnet, Scopus, Researchgate, recovering a total of 16 reference articles from available literature related to the topic in question, included in the time frame. between 2018 and 2024.
Results: gamification is positively related to the self-efficacy of users in participating in physical activity and improving healthy habits through the implementation of a didactic strategy, gamification is revealed as a tool with great potential to stimulate motivation and enhance abilities, promote the improvement of conditional physical abilities, including aspects such as resistance, strength, agility and flexibility, influences a decrease in anxiety and overwhelm in the face of failure, greater control over social stress and the Depression.
Conclusions: gamification manages to generally reduce the effects of anxiety due to the feeling of failure, motivates the passing of individual and group tests, teamwork, promotes the improvement of conditional physical abilities, allows the overcoming of personal challenges Furthermore, it enhances people's willingness to practice a healthier lifestyle.

Keywords: Gamification; Physical Abilities; Healthy Habits; Welfare.

RESUMEN

Introducción: gamificar es incorporar los elementos y dinámicas del juego a una experiencia educativa, se intenta que las personas se animen a ser más activas en materia de salud y forma física
Objetivo: determinar la influencia de la gamificación en la salud de las personas.
Método: se realizó una revisión de la bibliografía mediante los artículos rescatados desde las bases de datos como SciELO, Dialnet, Scopus, Researchgate, recuperándose un total de 16 artículos referenciales de literatura disponible relacionados con el tema en cuestión, comprendidos en el marco de tiempo entre el 2018 y 2024.
Resultados: la gamificación está relacionada positivamente con la autoeficacia de los usuarios en la participación de la actividad física y el mejoramiento de los hábitos saludables a través de la implementación de una estrategia didáctica, la gamificación se revela como una herramienta de gran potencial para estimular la motivación y potenciar capacidades, fomentar la mejora de las capacidades físicas condicionales, incluyendo aspectos como la resistencia, la fuerza, la agilidad y la flexibilidad, influye en el descenso en la ansiedad y el agobio ante el fracaso, mayor control sobre el estrés social y la depresión.
Conclusiones: la gamificación consigue disminuir de forma generalizada los efectos de la ansiedad ante la sensación de fracaso, motiva la superación de pruebas individuales y en grupo, el trabajo en equipo, fomentar la mejora de las capacidades físicas condicionales, permiten la superación de retos personales, además, potencializa la voluntad de las personas a practicar un estilo de vida más saludable.

Palabras clave: Gamificación; Capacidades Físicas; Hábitos Saludables; Bienestar.

© 2023; The Authors. This Open access article is distributed under the Creative Commons Attribution 4.0 license (https://creativecommons.org/licenses/by/4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

INTRODUCTION

Gamification (G) refers to techniques employed in game design but used in other non-game domains to promote the motivations of individuals. Nowadays, attempts are made to search, understand, and apply health information to related problems through mobile devices. Many applications provide this type of help and information, and in addition, they have an internal system that is designed as if it were a game. That is, this is where the concept of gamification appears, which refers to techniques that employ game design in various non-game activities to promote the motivations of individuals.[1]

The idea of introducing game structures to the most anodyne activities is familiar. However, it has practically always been used in contexts such as education or business to make these activities more attractive. However, in recent years, the concept has been subjected to academic study.[2] The term gamification was coined by the British computer game programmer Nick Pelling as early as 2002. However, it was not until 2008 that the term gamification appeared in the English-speaking world, which became popular in the second half of 2010.[1]

Translated into Spanish as ludificación, it is based on the use of techniques, elements, and dynamics typical of games and leisure in non-recreational activities in order to enhance motivation through gamified learning situations that allow reinforcing behavior during problem-solving, improving performance both at a motor level and in cognitive, affective or social aspects, as well as achieving personal and collective objectives and evaluating learning by the participant him/herself.[2]

Even though adolescents are currently healthier than those of past generations, a number of factors put their health at risk, which will have repercussions for the rest of their lives.[3] At this time, when they will undergo significant changes, the health habits and behaviors they adopt will extend into adulthood. Adolescence is an ideal time to teach a healthy lifestyle and to correct unhealthy habits that may have been acquired in childhood.[4]

Technology can help promote healthy lifestyle habits in this population sector by using fun formulas. Gamification would be an element of encouragement capable of increasing immersion in the app. Gamification incorporates game elements and dynamics into an educational resource or experience. However, the reality is that only some apps put this into practice.[4]

It is essential to consider that gamification should not only be conceived as a means of influencing people's behavior but as a tool to enrich the experience of individuals; in this sense, we must understand their internal and external motivations and adjust the gamification according to such findings.[5]

It is essential to generate a methodology for the development and implementation of a strategy through gamification as a valid method for teaching and research, in addition to generating knowledge for the entire educational community and bringing students closer to information technologies for their use for their benefit, since their physical activity is improved and healthy habits are encouraged.[6]

Therefore, the **objective** of this review article is to determine the influence of gamification on people's health.

METHOD

A review of the available literature was conducted using the synthetic and historical-logical analytical methods using articles rescued from databases such as SciELO, Dialnet, Scopus, and Researchgate, recovering a total of 16 referential articles of available literature related to the topic in question, comprised of the time frame between 2018 and 2024. Filters were used for the selection of articles in English and Spanish languages. The terms "Gamification," "Physical Capabilities," "Healthy Habits," and "Wellness" were used as keywords in the article.

RESULTS

Incorporating the concept of Gamification into apps is intended to encourage people to become more active in health and fitness. Some of the elements of Gamification used in these apps are other studies, self-monitoring, goal setting, and rewards.[1]

The educational potential that justifies it is determined by tasks that challenge the student. For teachers, it is an effective tool for capturing attention and increasing motivation since using the game with pedagogical intent generates curiosity and a search for new ideas.

Pedagogical intention generates curiosity and the search for novelty, where emotion and surprise can be fundamental for anchoring learning.[2]

According to Antón Lumbier[1], he assures in his study, Gamification is positively related to users' self-efficacy in participating in physical activity and, therefore, in their motivation. In addition, improvements in certain cognitive functions and physical, social, and psychoemotional health parameters of individuals.[3]

Silva ÁS et al[2]. concluded in their study that the hybridization of emerging pedagogical models (G), consolidated and innovative methodologies can favor the development of competencies of high educational interest in the current situation, such as student autonomy in the performance of roles, promoting intrinsic motivation in the transfer of learning towards changing the lifestyles of adolescents.

On the other hand, Palacios-Gálvez MS et al.[4] in their study state that to make health promotion campaigns more effective, the motivation of the people to whom they are directed is needed, which can be increased using Gamification through mobile devices. There are no known experiences in Spanish that address health promotion from a generalist gamification perspective. Therefore, Healthy Jeart is an application for smartphones and tablets, preferably aimed at a population between 8 and 16 years old, that aims to promote healthy habits physically, socially, and psychologically.

Beltrán Beltrán M[6] evidenced the improvement of physical activity and healthy habits of the participating students, being able to fulfill the general objective, raised as encouraging physical activity and healthy lifestyle habits through the implementation of a

gamification didactic strategy in students, in addition, a better participation of students in the dedication to perform activities and improve their sedentary habits was achieved.

After a thorough analysis of the literature related to Gamification, the attention given to its ability to be an effective strategy to achieve goals in various situations is highlighted, although Gamification is revealed as a tool with great potential to stimulate motivation and enhance participation. To achieve optimal performance, game elements must be thoroughly tailored to the purposes and requirements of those involved.[5]

Calderon Jaramillo JS et al. asserts that research focused on gamified action games in the development of conditional physical abilities in students has provided valuable insights into the effectiveness of this innovative approach. The results suggest that Gamification can effectively improve conditional physical capacities, including aspects such as endurance, strength, agility, and flexibility in this group of students.

A significant example of the influence of Gamification on physical activity is the application suggested by Jiménez Díaz C[7] in his study with an application for mobile devices, "Camina," aimed at users of the Barcelona Metro network which, through gamification techniques, encourages the incorporation of the most prolonged and most intense walking routes possible in their journeys around the city.

Today, the most significant professional challenge for teachers is to design educational programs accessible to all levels and stimulate students' motivation equally, making them feel confident, empowered, and uninhibited to acquire the specific skills of our subject. In this sense, Gamification could be an appropriate methodological strategy for students to overcome the barriers that arise when facing a new training activity, and, in addition, it could be less costly for them to complete it successfully.[8]

Rodríguez Martín B et al.[8], shows how Gamification positively affected the female high school students who participated in their research. In this case, the gamified approach in PE induced in them a decrease in anxiety and overwhelm in the face of failure. Thus, the consolidation of learning and academic performance may also benefit.

In turn, Magaña Salamanca E[9] identifies in his study the leading health-related problems involving young people, such as obesity and sedentary lifestyles. In addition, to combat and reduce these problems, a gamified proposal is created, with the mechanics and dynamics of a video game adapted to the interests and tastes of the students to motivate them to engage in physical activity, acquire healthy lifestyle habits, become aware of its multiple benefits and involve their families.

It has been shown that students reach a high level of commitment to learning when motivated, even wanting to continue with the recreational activity once the class has ended. In this sense, Gamification is a strategy capable of promoting meaningful learning by using elements that combine learning and fun, increasing students' motivation and active participation.[10] The authors consider that if the strong influence of Gamification as a learning tool is used in activities to promote a healthy lifestyle and the prevention of various diseases, it could significantly impact the health of different population groups.

The results obtained conclude that Gamification is a learning strategy that increases motivation and incites students to acquire healthy lifestyles and regular practice of physical and sports activities. In addition, most of them claim to have applied the heart rate satisfactorily. The most attractive challenges have been the collaborative, emotional, and, above all, individualized ones since they made it possible to attend to the different characteristics and interests of the students.[11]

Aroca Serrano R[11] comments that for Gamification to be successful, the games must offer rewards that involve the students in learning and are adaptable so that they can be played individually and in groups in the classroom.

Gómez del Río N[12] shows in his study significant improvements between the experimental and control groups in terms of their knowledge about healthy eating, their adherence to the Mediterranean diet, improved behavior, and a greater sense of responsibility, as well as greater control over issues such as social stress and depression. Thus demonstrating the efficacy of caloric expenditure associated with the use of active video games and the effectiveness of using technologies and Gamification with children to promote healthy habits in the short term.

Gamification, through its game mechanics, can stimulate and motivate both competition and cooperation between people, increased motivation for learning, constant feedback, more meaningful learning, more measurable results, development of appropriate skills, digital literacy, and learner autonomy, and in turn, all this leads to the establishment of better interpersonal relationships and more stable emotional health.[13]

Health and fitness gamification, on the other hand, has recently become a popular field of research. As a result, wearable devices have the potential to be used for fitness and exercise gamification.[14]

Romero Martín A[15], in his study, presents a proposal for improving healthy habits in primary education through Gamification with results that have shown an improvement in the performance of physical activity outside the classroom and in the increase of healthy foods during recess time. Both aspects are positive and improve the initial position. Gamification (G) is an essential activity for the development of human beings, and it is considered a primary tool for pedagogy and education.[16]

CONCLUSIONS

Gamification can diminish the effects of anxiety in the face of the sensation of failure, motivates the overcoming of individual and group tests teamwork, promotes the improvement of physical conditional capacities, allows the overcoming of personal challenges, and potentiates people's will to practice a healthier lifestyle.

FINANCING

The authors did not receive funding for the development of this research.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

AUTHORSHIP CONTRIBUTION

Conceptualization: Telmo Raul Aveiro-Róbalo, Vanessa Pérez-Del-Vallín.
Research: Telmo Raul Aveiro-Róbalo, Vanessa Pérez-Del-Vallín.
Methodology: Telmo Raul Aveiro-Róbalo, Vanessa Pérez-Del-Vallín.
Writing - original draft: Telmo Raul Aveiro-Róbalo, Vanessa Pérez-Del-Vallín.
Writing - revision and editing: Telmo Raul Aveiro-Róbalo, Vanessa Pérez-Del-Vallín.

REFERENCES

1. Antón Lumbier I. El impacto de la influencia social y la gamificación en la actividad física mediante el uso de aplicaciones móviles de salud (mHealth). UPNA 2023.

2. Sánchez Silva Á, Lamoneda Prieto J. Hibridación de la gamificación, la educación física relacionada con la salud y el modelo integral de transición activa hacia la autonomía en la iniciación al crossfit en estudiantes de secundaria. Dialnet 2021.

3. Melero D, García Ruíz J, Merino Barrero JA, Manzano Sánchez D, Valero Valenzuela A, Ardoy D. El enigma de seneb: aplicación de un programa educativo híbrido basado en el modelo de responsabilidad personal y social y la gamificación para el fomento de la condición física, aspectos psicosociales, hábitos de vida, rendimiento cognitivo y académico. Dialnet 2019.

4. Palacios-Gálvez S, Yot-Domínguez C, Merino-Godoy Á. Healthy Jeart: promoción de la salud en la adolescencia a través de dispositivos móviles Healthy Jeart: promoción de la salud en la adolescencia a través de dispositivos móviles. Rev Esp de Sal Púb 2020;94.

5. Calderón Jaramillo JS, Loaiza Dávila LE. Los juegos de acción gamificados en las capacidades físicas condicionales de estudiantes de bachillerato. Polo de Conoc 2023;8.

6. Beltrán Beltrán M. Estrategia didáctica de gamificación para fomentar la actividad física y los hábitos saludables en estudiantes de grado noveno. UNDES 2022.

7. Jiménez Díaz C. Desarrollo de una aplicación que utiliza la gamificación para mejorar la salud, fomentando el hábito de caminar en los desplazamientos urbanos. UOC 2020.

8. Rodríguez Martín, B, Flores Aguilar, G, Fernández Río, J. Ansiedad ante el fracaso en educación física ¿puede la gamificación promover cambios en las alumnas de primaria? INDUS 2022;44.

9. Magaña Salamanca E. La gamificación en Educación Física como instrumento motivacional para realizar una actividad física saludable. REDINED 2019.

10. González Maura D, Ocete Calvo C. Propuesta de hábitos de vida saludables basada en la gamificación: "Superhéroes Saludables". Comillas 2021.

11. Aroca Serrano R. Proyecto de innovación educativa a través de la gamificación: La aventura pirata. UCAM 2022.

12. Gómez del Río, N, González-González, CS, García-Peñalvo, FJ. Gamificación y aprendizaje basado en juegos para la educación en hábitos de vida saludable en la infancia. Gredos 2021.

13. Blanco Llorente M. La cooperación y la gamificación como instrumentos válidos para mejorar las relaciones interpersonales. UVA 2020.

14. Sullón Atoche E. Control de la actividad física con tecnología vestible (wearables). una revisión sistemática. UCV 2020.

15. Romero Martín A. Propuesta para la mejora de los hábitos saludables en Educación Primaria a través de la gamificación. UVA 2021.

16. Cabrera Geido E. Gamificar la educación : una mirada desde la psicología. UDELAR 2020.