

**Gamification in the field of initial music education. An innovative teaching-learning strategy****La ludificación en el ámbito de la educación musical inicial. Una estrategia de enseñanza-aprendizaje innovadora**

MARTÍNEZ HERNÁNDEZ, Gerardo &amp; BORISLOVA, Nadezhda

*Benemérita Universidad Autónoma de Puebla, Facultad de Artes. Cuerpo académico Música-BUAP-220*ID 1<sup>st</sup> Author: *Gerardo, Martínez Hernández* / ORC ID: 0000-0003-0544-8122, CVU CONAHCYT ID: 1078935ID 1<sup>st</sup> Co-author: *Nadezhda, Borislova* / ORC ID: 0000-0001-6076-2478, CVU CONAHCYT ID: 236953

DOI: 10.35429/JPD.2023.17.7.10.24

Received January 25, 2023; Accepted June 20, 2023

**Abstract**

This paper presents an alternative way of approaching music education for kids in initial education using gamification as a strategy. Gamification is an educational tool of relatively recent creation, which is based on game theory in the computer field, but in recently days it has been easily adaptable to the classroom and especially in early childhood musical education. This research aims to identify the constituent elements of a gamification based on Marczewski's proposal, to later devise a gamification plan in the field of initial music education. To achieve this objective, an analysis of the main constituent elements of gamification is carried out, with the purpose of structuring them in a way that allows the creation of educational planning with didactic sequences based on the project method, being quite innovative in the musical educational field.

**Intrinsic motivation, Gamification, Musical education****Resumen**

Este artículo presenta una forma alternativa de abordar la educación musical para niños en educación inicial utilizando la Ludificación como estrategia. La ludificación es una herramienta educativa de creación relativamente reciente, que se basa en la teoría de juegos en el ámbito informático, pero que en los últimos tiempos se ha ido adaptando fácilmente al aula y especialmente a la educación musical infantil. Esta investigación pretende identificar los elementos constitutivos de una ludificación a partir de la propuesta de Marczewski, para posteriormente idear un plan de ludificación en el ámbito de la educación musical inicial. Para lograr dicho objetivo se realiza un análisis de los principales elementos constitutivos de la ludificación, con la finalidad estructurarlos de forma que permitan la creación de planeaciones educativas con secuencias didácticas con basadas en el método de proyectos, siendo bastante innovadora en el ámbito educativo musical.

**Motivación intrínseca, Ludificación, Educación musical**

**Citation:** MARTÍNEZ HERNÁNDEZ, Gerardo & BORISLOVA, Nadezhda. Gamification in the field of initial music education. An innovative teaching-learning strategy *Journal Practical Didactics*. 2023, 7-17: 10-24

\*Correspondence to Author (e-mail: gerardo.martinezhdz@correo.buap.mx)

† Researcher contributing as first author.

## Introduction

One of the keys to teaching is to understand the way people learn so that education adapts to them and so that they can develop meaningful learning. Among the many strategies employed, we find that of gamification, which has been developing over the last decade with the desire to be more relevant, in response to the criticisms that arose at the time of this technique due to its marketing origin. However, it is structured in such a way as to generate favourable environments with appropriate stimuli in a regulated space, on the other hand, intrinsic motivation is especially encouraged, without underestimating other types of motivations or intentions when designing gamification.

One of the benefits of this strategy is its use in the field of music education, because it becomes quite relevant to attend to music learners in the initial stages, especially during the first phases of school education, whether in pre-school or primary school.

In this sense, at the end of the paper, a gamification programme is presented with an example so that its use can be appreciated, giving teachers the possibility of creative development towards new forms of interaction with pupils.

### 1. Justification

Approximately in 2010, a wave began to use games as an educational strategy in contexts that are not commonly used to be played, which is called gamification; this proposal arises with the definite purpose of increasing participation and taking advantage of the motivation of users to carry out activities that allow some change in the participants; in a certain way the intention is that the work or activities have a certain proportion of fun (Chitroda, 2015).

However, the observation of play as an educational element is not new, although it has accompanied us throughout history; we owe the study to identify the first contributions on the importance of play in the field of education to psychology, and it is from the second half of the nineteenth century that the first theories on play were identified.

Spencer (1855), for example, considered it as the result of an excess of accumulated energy, allowing it to "spend" surplus energy; on the other hand, Lazarus (1883), argued that individuals tend to perform difficult and laborious activities that produce fatigue, from which they rest by performing other activities such as play, which allows and produces some relaxation. By 1904, Hall's theory already showed the link between play and human cultural evolution, while Freud saw it as part of the satisfaction of instinctive impulses (erotic or aggressive), with the need for expression and communication of life experiences and the emotions that accompany these experiences. Piaget, from 1932 to 1966, emphasised the importance of play in developmental processes on many occasions, both theoretically and in clinical observations; he also based his research on moral development on play.

Similarly, Vygotsky, at the beginning of the 20th century, pointed out that play allows the development of conceptual behaviour guided by ideas, where the imaginary situation alters the child's behaviour, defining itself through its actions (Chamorro López, 2010).

The interesting thing about gamification is that it arises as a consequence of the use of computer technology, being Richard Bartle from the University of Essex who, in 1978, started with multiplayer experiences through the MUDI programme that used Telnet. By 1980, Thomas W. Malone, a professor at MIT, worked on how children can learn through play and included elements of Intrinsic Motivation.

It was not until 2004 that Games for Change was created, as a platform for different games that helped people understand the complexities of social conflict and, in turn, aimed to drive social change and humanitarianism within their communities.

But the term gamification itself was not used until 2003 thanks to Nick Pelling, a British programmer and inventor, only to take off in early 2010 when Jesse Schell and Jane McGonigal, who viralised the concept of gamification, got people thinking about using it for various aspects of life.

While its approach emerges as an element of technology and remains its key enabler, it has generated strategies that allow for its structured development in education beyond the virtual environment, enabling new ways of harnessing the power of educational technology to maximise the progress of educational objectives and achieve learning success. (Chitroda, 2015).

A more current definition of gamification is provided by Kevin Werbach (2014) who defines it as: "'The process of making activities more game-like' focuses on the crucial space between the components that make up games and the holistic experience of gamefulness". ["'The process of making activities more game-like' focuses on the crucial space between the components that make up games and the holistic experience of gamefulness" (p. 266)."] (p. 266). It is necessary to point out that, in accordance with this definition, gamification will be approached as a trigger for an educational intentionality, exploring it as a strategy within a game-based learning proposal. That is to say, to take advantage of its possibility of being used outside the classroom, however, not forgetting that it is possible to consider it as a ludic tool in which games have the possibility of rewarding the players themselves with their own satisfaction and pleasure of being in the game, taking for this purpose the RAMP theory of motivation, by Andrzej Marcewski: Relationship, Autonomy, Mastery and Proposal; and the 8 Kinds of Fun, by Marc Leblanc: Physical Sensation, Community, Fantasy, Discovery, Narrative, Expression, Challenge and Submission. (Net-Learning, 2015; Toledo Inclán, 2020).

Although some authors once considered gamification outside of game-based learning, due to its utilitarian function in the area of marketing and the business world, exposing various criticisms mainly as an element of promoting consumption, it is true that the development has also been addressed outside this commercial field, and even as structuring strategies for creating games that do not necessarily make use of technology, but of the design of the gamification process (Bagost, 2011; Robertson, 2010).

In any case, these first analyses need to be considered, especially if the aim is to promote a critical educational scheme, with the strategic possibility of creating game proposals focused on the development of educational processes. It is also imperative to note that even Marczewski is once held responsible for the prejudices regarding gamification by focusing on "behavioural changes" or "human-centred design" from marketing (2018, p. 13).

As a consequence of this innovative approach, strategies in the field of education were outlined in the last decade, and in 2022 researchers Lampropoulos, Keramopoulos, Diamantaras and Evangelidis from the International Hellenic University, conducted an analysis of 670 articles from 5 databases (Scopus, Web of Science, Google Scholar, IEEE, and ERIC) on gamification in education; These articles found overall positive behavioural, attitudinal and psychological changes and increased student engagement, motivation, active participation, knowledge acquisition, focus, curiosity, interest, enjoyment, academic achievement and learning outcomes, with teachers also positively evaluating its implementation. (Lampropoulos, Keramopoulos, Diamantaras, & Evangelidis, 2022).

It is necessary to reiterate that gamification is a strategy that allows the use of play in activities that are not commonly thought of as games, hence its importance as a strategy that generates pedagogical games. Lawley, a professor of games and interactive media at the Rochester Institute of Technology (RIT), notes that, when properly implemented in an educational way, "Gamification can help enrich educational experiences in a way that students will recognise and respond to. [Gamification can help enrich educational experiences in a way that students will recognise and respond to.]" (Deterding, 2012).

Within the literature on educationally focused games, it can be observed that they are most successful when they have elements such as: freedom to make mistakes, quick feedback, some progression and an accompanying story (Stott & Neustaedter, 2013).

In recent years, one of the most important focuses for the gamification process has been to work with the motivation of game participants, understanding that it is operating in two different ways, as intrinsic motivation and extrinsic motivation.

Intrinsic motivation is the natural tendency to seek and overcome challenges as personal interests are pursued and skills are exercised, it is because of this that no incentives (or punishments) are required because the activity is rewarding in itself, and it is because of the focus on this motivation that less interest has been given to the point system in current gamification, as it catered to extrinsic motivation, which arises to obtain something external, points, grades, etc. The essence of these types of motivation is the locus of control of the cause (the location of the cause), whether internal or external (Woolfolk, 2014).

## 2. Problem statement

One of the most important interests in addressing the issues of education is to understand how people learn, education is therefore a tool for acquiring knowledge that over the years has tried to understand and seek strategies that are consistent with the characteristics of human beings. In this interest in understanding the significance of knowledge, we find ourselves in the work of Ausubel who, from cognitivist psychology, deals with the description of the principles that converge with the idea of organisation and formation of the human mind, and how these reach different states of consciousness.

The perception of the underlying cognitive processes is achieved with learning that is internalised by transforming the learner's mental structures, thus, the main objective of his theory was to present how human beings learn, and consequently, Ausubel points out that meaningful learning requires both the attitude of meaningful learning and the presentation of potentially meaningful material; two basic conditions derive from the latter: firstly, that the material is related in a plausible, reasonable and non-random way to an appropriate and relevant cognitive structure and, secondly, that the learner's cognitive structure contains anchoring ideas with the new material (Ausubel, 2002).

While each person's cognitive structure is unique and therefore meanings are also unique, it is important to note that, within that uniqueness, Ausubel (1983) identifies three main types of learning, which are:

1. Representational learning. - This allows the assignment of meaning to particular symbols (usually words) and "occurs when arbitrary symbols are equated in meaning with their referents (objects, events, concepts) and signify to the learner whatever meaning their referents allude to" (Sullivan & Ausubel, 1983, p. 46).
2. Concept learning. - This learning enables the acquisition of new knowledge, and is whereby symbols take on meaning through the understanding of experiences through construction and mental projections that end up being expressed in words.
3. Proposition learning. - This involves a combination and relationship of several words each constituting a unitary referent (component), to be subsequently combined in such a way that the resulting idea is more complex than the simple sum of the meanings of the individual component words, producing new meanings assimilated into the cognitive structure.

As can be seen, it is in these basic learning processes that all other learning processes are derived by combining and linking them together, especially if there is a learning attitude and the material in turn is meaningful, So the question arises of how to bring meaningful learning into the classroom for music students? To answer this question, we propose to draw on the work of Andrzej Marczewski (2018), who proposes a scheme of gamification, game thinking and motivational design, which mainly employs intrinsic motivation by identifying people's main motivations. He personally defines gamification as "The use of game design metaphors to create more game-like and engaging experiences" (p. 13). (p. 13).

With this information we set out the objective of identifying the constituent elements of gamification based on Marczewski's proposal, in order to subsequently devise a gamification plan for early music education in pre-school or primary school. In this sense, Marczewski proposes the following scheme for approaching gamification:



**Figure 1** User journey framework for gamification (Marczewski, 2018, pág. 133)

But for a student/player to be able to follow this path of gamification, it is required to comply with certain mechanisms that allow to understand the procedures of the game, what makes it fun, what are the stories that will accompany it, the materials or technology that will be placed to make it happen and finally, the aesthetics of the environment that will allow the greatest impact (Schell, 2019), the aesthetics of the environment that allows the greatest impact (Schell, 2019), as well as what the players must think or mentally elaborate and the ethical aspects immersed in the game, the latter leads us to reflect on the deep reason why a game is proposed and where we want to get to with it (Marczewski, 2018).

### 3. Methodology developed

For this research, documentary research on gamification was carried out in an attempt to find proposals that could be used outside the field of computers, that is to say, that although its origin had been in computing, it could be used in multiple fields with the aim of making it a teaching-learning strategy for any educational environment and, above all, that would allow its inclusion in a planning scheme for children's music education. To this end, a selection of texts was made, discriminating against those that did not meet the established criteria, i.e. those that required the use of digital technology as a compulsory strategy.

Marczewski was the main reference, however, his proposal was modified with contributions from other researchers in order to consequently present a relevant alternative in the field of children's music pedagogy.

### 4. Motivation

Undoubtedly, motivation takes on a transcendent importance in this proposal, and the fact that gamification has made it possible to achieve a significant attitude, as shown in a research on the results of various publications that analysed the application of gamification at the baccalaureate level:

The most repeated in gamification works is the increase in motivation (Alarte-Hernández et al., 2021; Fernandez-Río et al., 2020; Monguillot et al., 2015; Navarro et al., 2017) coinciding with the results of Apóstol (2013) where they stated that gamification positively affected motivation.

Within motivation, both intrinsic motivation and extrinsic motivation are affected by gamification (Fernández-Río et al., 2020; Monguillot et al., 2015).

Extrinsic motivation is affected by game elements such as rewards or progress bars according to Malone & Lepper (1987). Often these classifications favour the social factor (Deci & Ryan 1985), although authors such as Fernández-Río (2020), the markers are not public, to avoid generating this competition with the rest of the students. Even so, it is observed that in the rest of the studies extrinsic motivation increases (Alarte-Hernández et al., 2021; Monguillot et al., 2015). (López Quero, 2022).

As can be identified, motivation is one of the elements that most manages to promote gamification, however, this starts from certain considerations, i.e., trying to enhance intrinsic motivation and thereby identify how to propose gamification, for this identifies three layers of motivation:



**Figure 2** Own creation based on the three layers of motivation. (Marczewski, 2018, pág. 74)

Humanistic approaches have introduced the notion of growth as a key element. They argue that within every human being there is an intrinsic motivation to expand one's own capabilities and develop inherited talents. This innate motivation is shared by all individuals, although certain circumstances may influence its manifestation, either fostering or hindering it (Elizalde, Martí Vilar, & Martínez Salvá, 2006).

In the graph, the base shows the basic needs of the human being, those that are minimally required to achieve a certain fulfilment in order to obtain better experiences; although these have been repeatedly criticised, in general they allow us to think of those minimum conditions of a human being to be satisfied in order to achieve an adequate development in life. On the other hand, intrinsic motivations are thought of as those that are inherent to the participating subject, and in Marczewski's proposal, they allow, through their identification, to delineate certain types of players to whom different activities are offered.

## 5. Types of players

It is very important to point out that gamification, in order to meet the motivational requirements of those to whom gamification is proposed, it is necessary to identify who they are and what their interests are in general, which will lead to a more transcendent proposal.

- Philanthropists are motivated by purpose and meaning. This group is altruistic, wanting to give to others and enrich the lives of others in some way, without expectation of reward.
- Socialisers are motivated by relationship. They want to interact with others and create social connections.

- Achievers are motivated by mastery. They are seeking to acquire knowledge, learn new skills and improve themselves. They want challenges to overcome. Eduardo Toledo (2020) translates these terms into Spanish as *conseguidores* who are motivated by mastery.
- Free spirits are motivated by autonomy and self-expression. They want to create and explore.
- Disruptors are motivated by change. In general, they want to disrupt their system, either directly or through other users to force positive or negative change.
- Gamers are motivated by extrinsic rewards. They will do whatever it takes to collect rewards from a system and not much else. They are in it for themselves.

These six types of people (gamers) are engaged by specific motivations, identifying in the first four types of people, connections with interests based on their intrinsic motivation, while in the case of disruptors by four disruptive sub-motivations (Afflictors, Destroyers, Influencers and Innovators), and in the case of gamers four extrinsic sub-motivations (Egoists, Consumers, Networkers and Exploiters). Marczewski arranges them as follows in a diagram for further visualisation.



**Figure 3** Own creation based on the scheme of user types (Marczewski, 2018, pág. 115)



Each of these users or players will be interested in certain activities, and these activities will allow gamification to maintain an optimal development without generating stress or boredom, something that is called fluency. Each of the motivations generates different behaviours, so it will be necessary to reflect, depending on the type of users, which ones we will try to encourage and also what they are expected to stop doing..



**Figure 4** Own creation, including Marczewski's previous graph of users and their behaviour

## 6. Experiences

For this purpose, some pleasant experiences are going to be included transversally in the project, taking into account the 8 types of fun according to Hunicke, Le Blanc and Zubek (2004), which are:

1. Sensation: Play as sensory pleasure.
2. Companionship: Play as a social framework.
3. Fantasy: Play as fantasy.
4. Discovery: Play as unknown territory.
5. Narrative: Play as drama.
6. Expression: Play as self-discovery.
7. Challenge: Play as obstacle course.
8. Submission: Play as a pastime (Hunicke, LeBlanc, & Zubek, 2004).

Likewise, we find such pleasant experiences in the form of cards created by Ferrán Altarriba and shared by Toledo Inclán.



**Figure 5** Pleasant experiences (Altarriba, Ferrán en Toledo Inclán, 2020)

In order to transmit these experiences, the best strategy is through the creation of a theme that describes a leading situation and that allows the creation of the environment or atmosphere where gamification takes place and makes known the Experiences that are going to be proposed, either the Activities or behaviours according to the Motivations of each one of the players, as well as the Dynamics that will take place at the moment of the game and the Mechanics or ways in which they will be carried out.

The story that is made will provide an introduction to the game and the possibilities of the game, so that the game can be made in a personal or communal way and, if necessary, show the rewards that are given for the achievements.

The general structure of a narrative is: the introduction, the challenge, the transformation and the resolution. It is important to consider that the narrative does not have to be linear and that several characters should be involved, thus inviting many possibilities for the completion of the game. An important issue to point out is that the cartoon has meaningful choices for the members, so that they become as much immersive as possible, it is important to consider that every decision has consequences and, on the other hand, although the cartoons are fictional and from a fantasy world, it is necessary that they remain tied to the reality we want to promote, so that the players manage to understand this educational interaction without problems (Marczewski, 2018).

## 7. Dynamics

One of the issues sought within gamification is to convert what motivates them into actions through the use and interaction between people, through fictitious situations, posed with specific objectives previously established. In this sense, the generation of dynamics is proposed with the possibility of generating participatory experiences, that is, based on what the participant feels and lives, and also if we look at it as a dynamic that is carried out with others among peers:

It is an excellent way of community integration, as well as an effective procedure of social education and cooperation. There is a strong satisfaction in participation, communication and exchange (Ortega, 2016).

For this purpose, the 16 desires of Steven Reiss (2002) are used, the idea is to ensure that the dynamics designed have a certain pleasure for the participants, for Reiss, pleasure is the by-product of achieving what we want, it is not the end of the desire, as an example he gives that, in the case of health personnel. For this person the goal of experiencing pleasure is not created in the desire to help patients; rather, altruism prompts them to make sacrifices for their patients. Thus, we have certain desires such as the desire for tranquillity, social contact, romance, among others that lead us to generate a proposal and story in the games.

The dynamics seen as a set story that gives structure to the gamification, these fall on the fact of having the players interested and connected with their motivations by establishing the context and means of development within the gamification, we could work the dynamics as the structure of the theme of the gamification. Reiss (2002) describes them as follows:

1. Acceptance: the need to be appreciated.
2. Curiosity, the need to acquire knowledge.
3. Eating, the need to eat.
4. Family, the need to care for children.
5. Honour, the need to be true to the customary values of an individual's ethnic group, family or clan.
6. Idealism, the need for social justice.

7. Independence, the need to be distinct and self-reliant.
8. Order, the need for prepared, established, conventional environments.
9. Physical activity, the need for out-of-body work.
10. Power, the need to control the will.
11. Romance, the need for mating or sex.
12. Saving, the need to accumulate something.
13. Social contact, the need for relationship with others.
14. Social status, the need for social significance.
15. Reassurance, the need to be safe and secure.
16. Revenge, the need to strike back at another person (Reiss, 2002).

Similarly, Toledo Inclán shares graphically the sixteen dynamics with Ferrán Altarriba's designs in which the action to be undertaken is described.



**Figure 6** 16 wishes (Reiss, Steven en Toledo Inclán, 2020)



## 8. Mechanics

Likewise, we have to consider important the mechanics, which are the implementation of the dynamics, that is to say, those situations that will allow us to generate activities that will encourage intrinsic motivation, to which we could add some mechanics of extrinsic motivation or disruption that allow us to keep people active who sometimes are not so intrinsic, but, in gamification, we will try to encourage or stimulate them towards intrinsic activities or behaviours. Marczewski proposes the following mechanics in which we are going to promote the behaviours to be stimulated.

### *Intrinsic*

1. Socialisers:
  - a. Guilds/Teams. Let people build close-knit guilds or teams. Small groups can be much more effective than large, sprawling ones. Create platforms for collaboration, but also pave the way for team competitions.
  - b. Social networking. Allow people to connect and socialise with an accessible and easy-to-use social network. It can be more fun to play with other people than to play alone.
  - c. Social status. Status can generate greater visibility for people, creating opportunities for new relationships. It can also feel good. It can make use of feedback mechanisms such as leaderboards and certificates.
  - d. Social Discovery. A way of finding people and being found is essential for building new relationships. Matching people based on their interests and status can help people start interacting.
  - e. Social pressure. People often do not like to feel like outsiders. In a social setting, this can be used to encourage people to be like their friends. It can be demotivating if expectations are unrealistic.
2. Free spirits:
  - a. Exploration. Give your free spirits space to move and explore. Consider that they will want to find the boundaries so give them something to find.
  - b. Branching options. Let the user choose their path and destination. From multiple learning paths to responsive narratives. Remember, the choice must be (or at least feel) meaningful to be most effective and appreciated.
  - c. Easter eggs. Easter eggs are a fun way to reward and surprise people just for a glimpse. For some, the harder they are to find, the more exciting it is!
  - d. Unlockable/rare content. Add to the sense of self-expression and value by offering unlockable or rare content for free spirits to use. Linked to Easter eggs and exploration, as well as achievements.
  - e. Creativity tools. Allow people to create their own content and express themselves. This can be for personal benefit, for pleasure or to help others (learning materials, levels, equipment, FAQs, etc.).
  - f. Personalisation. Give people the tools to personalise their experience. From avatars to the environment, allow them to express themselves and choose how they will present themselves to others.
3. Achievers:
  - a. Challenges. Challenges help keep people engaged, testing their knowledge and allowing them to apply it. Overcoming challenges will make people feel that they have earned their achievement.
- f. Competition. Competition gives people the opportunity to prove themselves in front of others. It can be a way to earn rewards, but it can also be a place where new friendships and relationships are born.

- b. Certificates. Unlike general rewards and trophies, certificates are a physical symbol of mastery and achievement. They carry meaning, status and are useful.
- c. Learning/New Skills. What better way to achieve mastery than to learn something new? Offer your users the opportunity to learn and expand.
- d. Quests. Quests give users a fixed goal to achieve. Often made up of a series of linked challenges, multiplying the sense of achievement.
- e. Levels/Progression. Levels and objectives help map a user's progression through a system. It is as important to see where you can go as it is to see where you have been.
- f. Boss battles. Boss battles are an opportunity to consolidate everything you have learned and mastered into an epic challenge. It usually signals the end of the journey and the beginning of a new one.
4. Philanthropists:
- a. Meaning/Purpose. Some just need to understand the meaning or purpose of what they are doing (epic or not). For others, they need to feel that they are part of something bigger than themselves.
- b. Caring. Caring for others can be very rewarding. Create roles for administrators, moderators, curators, etc. Allow users to take on a parenting role.
- c. Access. Access to more functions and capabilities in a system can give people more ways to help others and contribute. It also helps them feel valued. More meaningful if earned.
- d. Collect and trade. Many people love to collect things. Offer them a way to collect and trade items in your system. It helps build relationships and feelings of proposition and value.
- e. Gift/Share. Allow giving away or sharing items with others to help them achieve their goals. While it is a form of altruism, the potential for reciprocity can be a strong motivator.
- f. Knowledge sharing. For some, helping others by sharing knowledge with them is its own reward. Develop people's capacity to answer questions and teach others.
- g. Extrinsic (Use sparingly if working with adults or to maintain attention in long games).
5. Gamers:
- a. Points / Experience Points (XP). Points and XP are feedback mechanisms. Can track progress, as well as be used as a way to unlock new things. Reward based on achievement or desired behaviour.
- b. Physical. Rewards/Rewards. Physical rewards and prizes can promote a lot of activity and, when used well, can create engagement. Be careful to promote quantity over quality.
- c. Leaderboards / Ladders. Leaderboards come in different forms, most commonly relative or absolute. Commonly used to show people how they compare to others and for others to see them. It is not for everyone.
- d. Badges / Achievements. Badges and achievements are a form of feedback. Reward people for their achievements. Use them wisely and meaningfully to make them more appreciated.
- e. Virtual economy. Create a virtual economy and allow people to spend their virtual currency on real or virtual goods. Examine the legalities of this type of system and consider the long-term financial costs!
- f. Lottery / Gambling. Lotteries and games of chance are a way to win prizes with very little effort on the part of the user. You have to be involved in it to win!

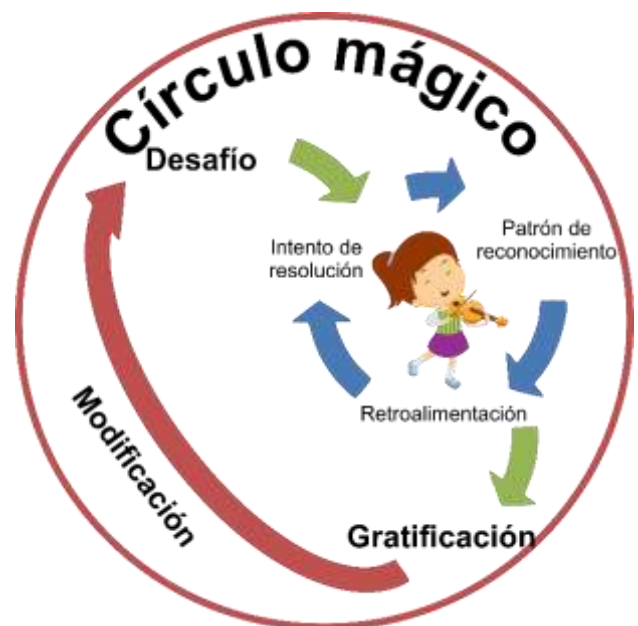
*Disruptive* (To promote changes in the environment, use wisely).

6. Disruptors:
  - a. Innovation Platform. Disruptors think outside the box and the boundaries of their system. Give them a way to channel that and you can generate great innovations.
  - b. Voting/Voice. Give people a voice and let them know they are being heard. Change is much easier if everyone is on the same page.
  - c. Development tools. Think about modifications instead of hacking and breaking. Allow them to develop new add-ons to improve and develop the system.
  - d. Anonymity. If you want to encourage total freedom and lack of inhibitions, allow your users to remain anonymous. Be very, very careful as anonymity can bring out the worst in people!
  - e. Light touch. While you must have rules, if you are encouraging disruption, apply them with a light touch. See how things develop before you jump in. Be attentive and listen to user feedback.
  - f. Anarchy. Sometimes you just have to burn it all down and start again - sit back, throw the rule book out the window and see what happens! Consider running short "no rules" events (2018, pp. 252-259).

### Feedback

Within education, but even in games, doing an activity in a repetitive way without the possibility of improvement or innovation ends up becoming boring and even a nuisance, and an activity could not be thought of as educational if there are no possibilities for feedback in it, therefore, it is important to consider that the proposal must involve an interesting challenge where patterns of recognition of progress are established.

For this the process must have an assurance of learning with feedback at all times in order to adjust what is necessary, therefore, an environment must be generated that allows the possibility of failure; This environment is called in gamification as a magic circle and, finally, to allow that after achieving the fulfilment of a challenge, to give a sense of gratification or reward for the effort spent towards that conclusion to each student. Here it is important to note that the conclusion invites us to try to meet a new challenge with a higher level of difficulty than the one previously used, the key is to maintain the enthusiasm to achieve new achievements (Marczewski, 2018). Graphically we observe this feedback scheme with the following figure:



**Figure 7** Own creation based on the magic feedback loop (Marczewski, 2018, pág. 179)

After this broad approach to each of the constituent elements of gamification, it now remains to describe the planning scheme of gamification in order to verify how each of these elements interacts with a specific topic to be addressed.

### Playification scheme, approach to the educational approach

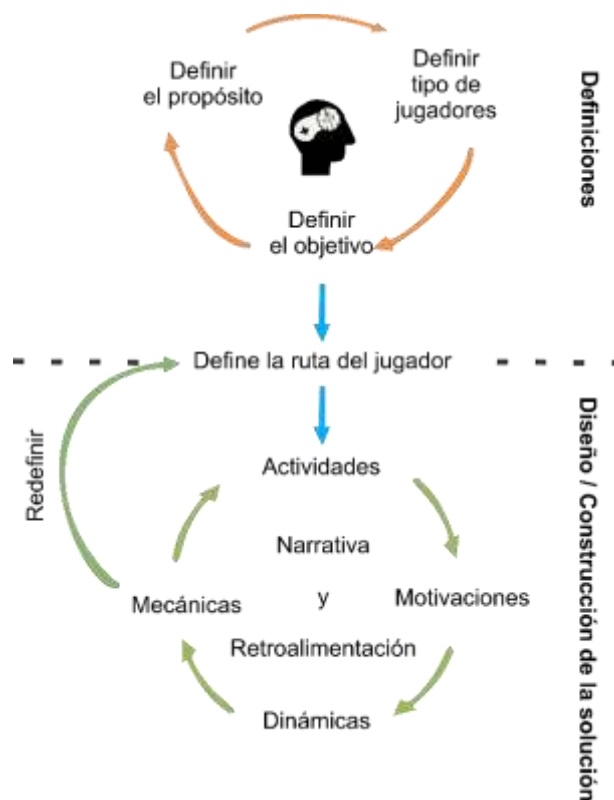
The gamification scheme is a mixture of Marzewski's (2018) proposal and Gojko Adzic's (2012) mapping presented by Toledo (2020) to which we have adapted it for use as a planning tool. This outline is intended to provide the following elements for those who intend to implement gamification.

According to the following table, it is possible to understand the structure of gamification:

|  |                               |
|--|-------------------------------|
| <b>Defining the educational purpose:</b> A detailed example is given in table 2.   |                               |
| What kind of players will interact?  |                               |
| <ul style="list-style-type: none"> <li>- Philanthropists</li> <li>- Socialisers</li> <li>- Achievers</li> <li>- Free spirits</li> <li>- Disruptors</li> <li>- Gamblers</li> </ul>  |                               |
| ¿ What experiences will they be immersed in, the use of emotions? Theme and narrative that builds the atmosphere: 8 types of fun.  |                               |
| <ol style="list-style-type: none"> <li>1. Sensation: Play as sensory pleasure.</li> <li>2. Companionship: Play as a social framework.</li> <li>3. Fantasy: Play as fantasy.</li> <li>4. Discovery: Play as unknown territory.</li> <li>5. Narrative: Play as drama.</li> <li>6. Expression: Play as self-discovery.</li> <li>7. Challenge: Play as obstacle course.</li> <li>8. Submission: Play as pastime</li> </ol> |                               |
| The narrative of play:   |                               |
| <ul style="list-style-type: none"> <li>- Introduction</li> <li>- The challenge</li> <li>- Transformation</li> <li>- The resolution</li> </ul>  |                               |
| ¿ Which activities (behaviours) will be encouraged according to the type of players? RAMP:   |                               |
| Relationships: Collaborate (Help, comment, share, contribute, nurture, greet).<br>Autonomy: Explore (Seek, Curate, Find, Collect, Review, Assess, View).<br>Mastery: Compete (Outwit, Compare, Buy, Challenge, Win, Fight, Steal).<br>Proposition: Express (Build, Create, Share, Decorate, Choose, Customise, Personalise).   |                               |
| ¿ What are the working dynamics, i.e. the actions during the game? 16 wishes:  |                               |
| Acceptance   | Physical activity             |
| Curiosity  | Power                         |
| Eating   | Romance                       |
| Family   | Saving                        |
| Honour   | Social contact                |
| Idealism   | Social status                 |
| Independence   | Peace of mind                 |
| Order  | 16.Revenge                    |
| ¿ What mechanics will be used with respect to the type of players, is that allowed to perform:   |                               |
| <i>Intrinsic</i>   | 1. Meaning/Purpose            |
| Socialisers:   | m. Care                       |
| a. Guilds/Teams  | n. Access                     |
| b. Social network  | o. Collect and trade          |
| c. Social status   | p. Gift/Share                 |
| d. Social Discovery  | q. Knowledge sharing          |
| e. Social Pressure   | Extrinsic                     |
| f. Competition.  | 2. Players:                   |
| 2. Free spirits:   | a. Points / Experience Points |
| a. Exploration   | (XP)                          |
| b. Branching options   | b. Physical rewards / Prizes  |
| c. Easter Eggs   | c. Leaderboards / Ladders     |
| d. Content   | d. Badges / Achievements      |
| desbloqueable/raro   | e. Virtual economy            |
| Herramientas de creatividad  | f. Lottery / Gambling         |
| c. Personalisation   | Disruptive                    |
| 2. Successful:   | 3. Disruptors:                |
| a. Challenges.   | a. Innovation Platform        |
| b. Certificates  | b. Voting/Voice               |
| c. Learning/New Skills   | c. Development Tools          |
| d. Missions  | d. Anonymity                  |
| e. Levels/Progression  | e. Light touch                |
| f. Boss battles.   | f. Anarchy                    |
| 3. Philanthropists:  |                               |

**Table 1** Components of gamification.

With this information, we consider that the graphical outline of gamification is as follows:



**Figure 8** Structure of gamification, own creation based on (Marczewski, 2018, p. 271)

**Results**

With the information presented above, we show a sample of school gamification planning, as an example, as follows:

Title: the guitar and the family

| LEAD GUITAR  | EDUCATOR:   | BIMESTER OF THE COURSE: 2 | NUMBER OF SESSIONS: 6 | START: END: |
|--|---|---------------------------|-----------------------|-------------|
| What am I going to do, how am I going to do it, who am I going to do it for, where am I going to do it, and with what resources?   | Explore the strings of the guitar with the aim of achieving a good position and use of the index and middle fingers of the right hand.<br>The book The Little Guitarist's Notebook by Nadia Borislova, the three songs on pages 79, 80 and 81, will be used for this purpose.<br>The proposal will be focused on Girls and boys guitarists of the initial guitar course. Basic education of phase 3.<br>Developing in face-to-face classes with the intention of practising at home.<br>Having as necessary resources their guitar, music stand and bench, as well as the respective book.  |                           |                       |             |
| What do we want students to learn and achieve, what is the plan to achieve it, how do we make learning more effective, and how do we evidence and assess learning achievement? | The aim is to encourage the proper use of the right hand with the index and middle fingers, having a good sound and location of the guitar strings while taking care of their position.<br>In order to achieve this, a process will be carried out with each of the strings as they pluck and interchange the sounds of the guitar with the lyrics of the songs.<br>In order to achieve effectiveness, special attention will be paid to the way of interpreting, avoiding normalising mistakes during the performance, going from a slow speed to a faster one, maintaining a constant rhythm.<br>The strategy of evidence is through a presentation in front of their classmates. |                           |                       |             |
| Describe the type of players:  | It will depend on the group in question. It is recommended to use the motivation assessment in the league: <a href="https://www.gamified.uk/UserTypeTest2023/user-type-test.php">https://www.gamified.uk/UserTypeTest2023/user-type-test.php</a><br>For our case, we will try to encourage the intrinsic motivations of Socialisers and Achievers essentially.  |                           |                       |             |
| What experiences they will be immersed in, the use of emotions. Theme and narrative that builds the  | Once Vlad had gone out to the countryside with his mother, his father and his grandmother. As usual they walked around trying to find new places, so they chose to take a path that led them to a space full of light, flowers and tinkling sounds, like little bells.<br>Anita was so excited that she ran off without realising that she had entered an enchanted forest, so she suddenly found   |                           |                       |             |

|   |  |
|---|--|
| atmosphere: 8 types of entertainment..  | herself alone. She started to get scared, but through the leaves she heard a magical voice saying: "Don't worry, just sing the songs while you play this magic guitar". Fortunately Anita had started her music lessons so she quickly set about the task of playing them. There appeared some sheet music in gold leaf and a large guitar that seemed to play by itself.<br>In the background of the forest he could see the silhouettes of his mother, his father and his grandmother. As he played the respective pieces, their silhouettes became more and more obvious and shiny. If he made a mistake, they would disappear again. Likewise, he noticed that while he played the guitar, many little animals from the forest came to listen to him play and sing. The voice of the forest told him that he had not only to play, but to put all his heart into it.<br>So in the end he managed to play the songs perfectly and everyone could laugh. The voice of the forest brought them a blanket with food and lots of goodies that they could enjoy for the rest of the afternoon. |
| Which activities (behaviours) will be encouraged according to the type of players: RAMP       | Mastery: Challenging oneself, to achieve the right interpretation.<br>Relationships: Collaborate through their personal contribution to the music of the guitar and singing, nurture other classmates to excel and discuss ideas to achieve together to overcome the challenge of managing to appear to the parents. Drawings will be used in the score to indicate the progress made in making the parents appear, real photos can be used..  |
| What are the working dynamics, i.e. the actions during the game. 16 wishes.                   | Acceptance, Eating, Curiosity, Family, Social contact.<br>Each child will practice in class with collaborative presentations, so that each of the pieces is covered in a maximum of two weeks.<br>The teacher will place the silhouettes of mum, dad and grandma on the blackboard or another child, depending on the interpretation. The listeners will be the other children in the class simulating the animals of the forest, while the voice of the forest will be the teacher. At the end of the last performance, some small chocolates will be distributed.  |
| What mechanics will be used with respect to the type of players, what they are allowed to do. | Socialisers: Discovery and social pressure.<br>Achievers: Learning new skills and progression scheme.<br>At the end of the second session, after several rehearsals, a staging of the story will take place.<br>At the end of the second session, after several rehearsals, a staging of the story will be carried out. The children are invited to motivate their classmates to meet the challenge and, above all, to feel listened to by the others..  |

Heading:

| Indicators                                      | Preformal                         | Receptive  | Resolutive   | Self-employed   | Strategic   |
|---|-----------------------------------|--|--|---|---|
| 1.- rhythmic accuracy and fluency               | No rhythmic precision or fluency. | Many difficulties in keeping the pulse of the work. The performance is constantly interrupted, eliminating any cohesion in the musical discourse. Rhythmic sequences lack precision. | He finds it difficult to adjust to the tempo of the work, often getting ahead or behind the tempo. The interpretation is insecure, with three or more pauses interrupting the musical discourse. Lacks some precision in the reproduction of rhythmic sequences. | He keeps the pulse of the work quite well, although he occasionally breaks off, gets ahead or falls behind in tempo. Reproduces rhythmic sequences accurately most of the time. | Keeps the pulse of the work perfectly without interruptions and keeps to the tempo. Reproduces the rhythmic sequences accurately. |
| 2.- melodic/harmonic accuracy.                  | No melodic or harmonic precision. | The interpretation of the melody or harmony (notes and/or chords) lacks precision throughout most of the work.   | There is a lack of precision and security when interpreting the melody or harmony (notes and/or chords) in many moments of the work, but it tries to do so.  | Interprets the melody or harmony (notes and/or chords) quite accurately and confidently throughout most of the work.  | Interprets the melody or harmony (notes and/or chords) throughout the piece with complete precision and confidence.               |
| 3.- sound quality                               | No sound quality.                 | Sound is not controlled, lacks clarity and definition throughout most of the work.   | The sound, in general, is poorly controlled, although some clarity and definition is achieved at times.  | The sound is clear, defined and of good quality throughout most of the performance.   | The sound is clear, defined and of high quality.  |
| 4.- attitude during performance and rehearsals. | No interest in it.                | Little or very little concentration and attention during rehearsals and performance. Does not usually follow the teacher's indications.  | Concentration and attention variable during rehearsals and performance. Sometimes follows the teacher's indications.   | Fair amount of concentration and attention during rehearsals and performance. Teacher's indications are usually followed.   | Great concentration and attention during rehearsals and performance.  |
| 5.- group performance                           | No bonding with peers.            | Is totally focused on his/her role, ignoring the performance of the rest of the group.   | Has difficulty interpreting his/her role and adapting to the group. Sometimes succeeds in doing so.  | Most of the performance manages to fit in with the group, but is sometimes too focused on his/her role.   | The teacher's instructions are followed at all times.   |

Table 2 Example of gamification for a music subject

|             | Learning activities and organisation of learners   | Core product and developments                                  | Essential resources             | Session |
|-------------|--|--|---------------------------------|---------|
| Start       | Presentation of the play, raising awareness and reminder of beats, musical figures and notes. Individual and group rehearsal of the piece. |  | Lectern, bench, guitar and book | 1 y 2   |
|             | Individual rehearsal of the piece and performance practice in front of others.   | First attempt to present the first piece.                      | Idem.                           | 2 y 3   |
| Development | Individual rehearsal of the piece and performance practice in front of others.   | First attempt to present the second piece.                     | Idem.                           | 3 y 4   |
|             | Individual rehearsal of the piece and performance practice in front of others.   | First attempt to present the second piece.                     | Idem.                           | 4 y 5   |
| Conclusions | Dress rehearsal, group participation.  |  | Idem.                           | 6       |
|             | Presentations and participation in front of the other students.  | Presentation of the pieces with contributions from classmates. | Idem.                           | 6       |

Conclusions

As can be seen, this type of strategy allows music education for children in basic education to be approached in an active, immersive way, with stimulation of motivation and also with the use of creative strategies. Having educational materials focused on childhood is a great help, and gamification is a tangible possibility to empower them towards new possibilities by making educational processes an intrinsic part of a motivating game.



Finally, with this structuring we realised that there is a great possibility of bringing gamification to the musical education field, and we also observed that, with the proposal shown, there is the possibility of future applications by linking the strategy with school music projects that are developed within the New Mexican School.

## References

- Adzic, G. (2012). *Impact Mapping: Making a big impact with software products and projects*. Woking, Surrey, United Kingdom: Provoking Thoughts.
- Ausubel, D. P. (1983). Teoría del aprendizaje significativo. *Fascículos de CEIF*, 1-10.
- Ausubel, D. P. (2002). *Adquisición y retención del conocimiento. Una perspectiva cognitiva*. Barcelona: Paidós.
- Bagost, I. (2011, agosto 08). *Gamification is bullshit*. Retrieved from Dr. Ian Bogost Blog: [http://bogost.com/blog/gamification\\_is\\_bullshit/](http://bogost.com/blog/gamification_is_bullshit/)
- Borislova, N. (2021). *El cuaderno del guitarrista más pequeño de Nadia Borislova*. Puebla: El errante editor.
- Chamorro López, I. (2010). El juego en la educación infantil y primaria. *Revista de la educación en Extremadura*, 19-37.
- Chitroda, H. (2015, junio 4). *A brief history on gamification*. Retrieved from KNOLSKAPE: <https://knolskape.com/blog/brief-history-gamification/>
- Deterding, S. (2012, julio 4). Gamification: Designing for Motivation. *Interactions*(19), 14-17. doi:10.1145/2212877.2212883
- Elizalde, A., Martí Vilar, M., & Martínez Salvá, F. (2006). Una revisión crítica del debate sobre las necesidades humanas desde el enfoque centrado en la persona. *Polis. Revista Latinoamericana*(15). Obtenido de <http://journals.openedition.org/polis/4887>
- Hunicke, R., LeBlanc, M., & Zubek, R. (2004). *MDA: A Formal Approach to Game Design and Game Research*. Illinois: Northwestern University. Retrieved from <https://users.cs.northwestern.edu/~hunicke/pubs/MDA.pdf>
- Illich, I. (1996). Necesidades. In W. Sachs, *Diccionario del Desarrollo. Una guía del conocimiento como poder* (pp. 157-175). Lima: PRATEC.
- Lampropoulos, G., Keramopoulos, E., Diamantaras, K., & Evangelidis, G. (2022). Augmented reality and gamification in education: A systematic literature review of research, applications, and empirical studies. *Applied Sciences*, 12(13), 6809. Retrieved from <https://doi.org/10.3390/app12136809>
- López Quero, L. (2022). *La gamificación como metodología de enseñanza en educación física*. Elche: Universidad Miguel Hernández.
- Marczewski, A. (2018). *Even ninjas monkeys like to play*. United Kingdom: Gamified UK.
- Net-Learning. (2015, agosto 26). *Gamificación y aprendizaje basado en el juego: ¿en qué se diferencian?* Retrieved from Net-Learning: <https://www.net-learning.com.ar/blog/gamificacion-y-aprendizaje-basado-en-el-juego-en-que-se-diferencian.html>
- Ortega, O. (2016). *Dinámica de grupos: Técnicas de organización de eventos*. Bogotá: Ecoe Ediciones.
- Reiss, S. (2002). *16 basic desires that motivate our actions define our personalities* (Segunda ed.). New York: Penguin Publishing Group.
- Robertson, M. (2010, octubre 6). *No puedo jugar, no jugaré*. Retrieved from HIde & seek, inventin new kinds of play: <https://web.archive.org/web/20171206032905/http://hideandseek.net/2010/10/06/cant-play-wont-play>
- Schell, J. (2019). *The Art of Game Design: A Book of Lenses* (Tercera ed.). United States: CRC Press.

Stott, A., & Neustaedter, C. (2013). *Analysis of gamification in education*. Retrieved from School of Interactive Arts and Technology, Simon Fraser University: <http://clab.iat.sfu.ca/pubs/Stott-Gamification.pdf>

Sullivan, E. V., & Ausubel, D. P. (1983). *El desarrollo infantil. Los comienzos del desarrollo* (Vol. I Teorías). Barcelona: Paidós.

Toledo Inclán, E. (2020, febrero 16). *Gamificación*. Retrieved from 9BRAINS: <https://9brains.es/mapa-de-gamificacion/>

Werbach, K. (2014). (Re)Defining Gamification: A Process Approach. In A. Spagnolli, L. Chittaro, & L. Gamberini (Ed.), *Persuasive Technology. PERSUASIVE 2014. Lecture Notes in Computer Science. 8462*, pp. 266-267. Cham: Springer International Publishing Switzerland. doi: [https://doi.org/10.1007/978-3-319-07127-5\\_23](https://doi.org/10.1007/978-3-319-07127-5_23)

Woolfolk, A. (2014). *Psicología Educativa*. Ciudad de México: Pearson Educación.