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Gamify and transform the school

Gamificar y transformar la escuela

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Abstract

In this article we have shown that learning using play strategies improves acquisition of the skills and strategies desired for educating and reaching the learning objectives set by the school. We have highlighted motivation as being the basic element for making progress in play and for determining to what extent our system has been successful. In addition, we have analysed the characteristics inherent to play, the skills and strategies used when playing and the possibility of using them in the classroom in a gamified system. Using player observation as a starting point, we will review game strategies such as previous preparation, searching for details, collaborating or creating, which have been revealed as being fundamental to play and also to learning. To reach them, the design of our system must take into account the why, the what, for whom and how. And after all this has been harnessed, comes practice, classroom games, elements of play for learning, reflection on play...

Keywords

Game strategie; gamification; learning; motivation; playful elements.

Resumen

En este artículo hemos puesto de manifiesto que el aprendizaje utilizando estrategias lúdicas mejora la adquisición de competencias y estrategias deseadas para educar y alcanzar los objetivos de aprendizaje previstos por la escuela. Señalaremos la motivación como la característica básica para avanzar en el juego y para determinar el grado de éxito de nuestro sistema. Además las características propias del juego, las competencias y estrategias que se dan al jugar y su posible aplicación en las aulas en un sistema gamificado. Partiendo de la observación a jugadores, reseñaremos estrategias de juego tales como la preparación previa, la búsqueda del detalle, la colaboración o la creación, que se revelan como los fundamentos del juego y también del aprendizaje. Para llegar a ellas el diseño de nuestro sistema debe tener en cuenta el por qué, el qué, para quiénes y el cómo. Y cuando todo ello está encauzado se produce la práctica, juegos en el aula, elementos de juegos para aprender, reflexión sobre el juego...

Palabras clave

Aprendizaje; elementos lúdicos; estrategias de juego; gamificación; motivación

1. Introduction

When we talk about gamification we mean adding elements and/or play strategies in non-play contexts in order to motivate and involve users making them favourably predisposed to achieving certain goals. Therefore, we must analyse play and all the potential it has.

Play has been one of the main strategies for learning over time which even pre-dates the first schools. We play in order to acquire basic skills and to fit in socially. Playing implies giving the objects that surround us meaning, contextualizing; likewise, when we play we need to adapt to different contexts and develop personally with others and the environment, nurturing our best qualities. Moreover, it is crucial to interact with others and create our own important meanings in order to tackle tasks in the best way possible. All of this helps learning to be long-lasting and in-depth. We may reflect upon it and be critical. These three characteristics which are desirable in any activity must be a priority in class and for this reason, we have gamified our contents with the aim of motivating our students.

Using all these features or any experience, whether this is in education or not, does not seem to be detrimental in any event. Setting objectives which have been restricted by a series of rules and providing feedback on how participants are progressing is something that is ever-present in most learning scenarios. However, the desire to put this into practice must be nurtured as in many settings, especially traditional learning environments, the quantity of game-based teaching that takes place is far lower than that desired. This is where gamification may help. When we talk about gamification we mean adding play elements and/or strategies in non-play contexts in order to motivate and involve users, making them favourably predisposed to reaching certain goals. Motivating our students to nurture the desire to do practical work at school is desirable and if using play strategies makes this easier, it would be unwise to overlook this. In educational settings, gamification can be used to alter apathetic behaviour and make learning in-depth.

This fundamental characteristic which brings about change in our classrooms is something inherent to play. In play, the freedom to fail, experiment, choose identities, control pace and effort, as well as to interpret our own motivation will provide us with the consequent degree of success.

In this article, we will look at the fundamental element of play- motivation - and some of the most salient references for studying this. Below are some of the most important competences and strategies used by players taken from the research project entitled *Transalfabetismos. Competencias transmedia y estrategias informales de aprendizaje de los adolescentes (Transliteracy, Transmedia Competences and Informal Learning strategies for teenagers)* (Ref. CSO2014-56250-R), funded by the State Programme for Research, Development and Innovation aimed at Challenges in Society, within the framework of the State Plan for Scientific and Technical Research and Innovation 2013-2016.

In the third epigraph the main elements which we must take into account when designing a gamified project in class are shown and afterwards, some practical experiments in gamification are given. In these practical experiments, gamified elements have been used with an intervention-action methodology in which the researcher himself or herself, an active actor, appears as being the driving force to this change. The aim of this type of research is to reach an understanding of the phenomenon studied, through the subjects observed and the observer himself or herself, and to promote change if necessary. (Callejo y Viedma, 2005: 167) Finally, there is a conclusion.

1. Motivation, the main driving force to play

This article has been written after reading El valor de educar (The value of educating) by Fernando Savater¹, which shows: "[...]most things schools must teach cannot be learnt by playing. According to the graceful saying by Nvalis², "Play is experimentation with chance. Education, however, is orientated towards a foreseen and deliberate end, however open this may be". This statement makes it clear that educating is not playing. Obviously, we do not need a teacher to play, but if when we do play we have an objective, we look at guides, forums, we ask class mates, we try out different strategies to make progress, we stop and reflect, we rechannel our play strategies..., all of which helps us fulfil our objectives and obtain the prize or reward for playing. In the same way when we educate, we guide our students towards a learning objective and to learn we must enquire, ask, try out, reflect and rechannel our strategies in order to reach different learning objectives. Perhaps play in observance of Novalis' definition is not suitable in an educational environment but educating using elements of play which are conducive to play strategies and which motivate students to gain an in-depth understanding would be beneficial and useful. In this respect, gamification has been defined as the use of play elements in non play settings which may provide learning resources which are beneficial to education.

If we consult the DRAE (the Dictionary for the Spanish Royal Academy), the second meaning given for play tells us it is a recreational or competitive exercise subject to rules in which one wins or loses such as in *cards, chess, amusement arcades and ball games*. Breaking down this definition, we can show two basic characteristics games have: the objective, which is brought into fruition by winning or losing and the guidelines or rules which impose limitations on how the game progresses. In this definition two synonyms for games are shown: recreational exercise and competitive exercise. When recreation is discussed, participation is voluntary which makes playing games beneficial. It is also safe and motivating and where we gain experiences and skills: as for competition, we should mention feedback which gives classifications or rankings in most play experiences. According to McGonigal, these four characteristics are fundamental to games. She adds there may be others, but these are the only reinforcing ones.

Using all these features or any experience, whether this is educational or not, does not seem to be detrimental in any event. Setting objectives which have been restricted by a series of rules and providing feedback on how the participants are progressing is something that is ever-present in most learning scenarios. However, the desire to put this into practice must be nurtured as in many settings, especially traditional learning environments, the quantity of game-based teaching that takes place is far lower than desired. This is where gamification may help. Gamification is adding elements and/or strategies of play in non-playful contexts in order to motivate and involve users making them favourably predisposed to achieving certain goals. Motivating our students to nurture the desire to do practical work at school is desirable and if using play strategies makes this easier, it would be unwise to overlook this. In educational settings, gamification can be used to alter apathetic behaviour and make learning in-depth.

This fundamental characteristic for bringing about change in our classrooms is something inherent to play. In play, the freedom to fail, experiment, choose identities, control pace and effort, as well as to interpret our own motivation will provide us with the consequent degree of success. The Dutch historian Johan Huizinga in his book *Homo ludens* talks about the magic circle, a motivating and safe environment in which we acquire experience and skills. Motivation is the basic characteristic we want to nurture, if our users are motivated, it means the system works. Therefore, what we look for is motivation.

From a psychological point of view, motivation is conducive to in-depth learning. Moreover, if this is intrinsic, desire will be so strong that this will be conducive to carrying out any activity. Motivation, an essential factor for carrying out any activity with enthusiasm and for achieving lasting goals, is divided into intrinsic and extrinsic types. The former describes a situation in which the subject himself or herself is self-motivated to carry out the activity, whereas in the latter the user considers what he or she must do and is motivated by something other than the activity itself, whether this is a reward or prize.

Gamified systems must prioritize user motivation as a driving force for change. In the self-determination theory, Ryan and Deci (2000) indicated that people in general seek challenges, have the desire to learn... and therefore we need to be motivated. This motivation will lead us to either success or failure, but either way, we will have made progress. Today, the subject that does things for the mere pleasure of doing them, according to Pink (2009) is one that is self-motivated and loves creating for the sake of doing this. As a result, the RAMP model³, which shows the desire to belong to a community and to have a status in it, as well as the capacity to decide on the actions we carry out, to control, the competence to be able to do these activities, the "flow" concept and finding meaning in our actions, promotes individual work and is also beneficial to society.

Csikszentmihalyi (2004) establishes the flow theory, linking enjoyment and satisfaction, indicating that when these states are given, activities are performed better. The flow state happens when there are clear objectives, immediate feedback and the relationship between ability and challenge is clear. All this encourages learning without any extra effort, but just that which is natural and fluid or effortless involvement. "Play is an activity which nurtures intrinsic motivation and in which flow states are required, abilities and challenges are balanced, the subject is highly focused and a positive experience is nurtured. (Teixes, 2014, p. 28). Locke and Lathan (1991) set a series of objectives in relation to motivation, which are clear, but difficult ones that are more attractive to users, as well as reasonable challenges, implication and participation as being the factors which also promote motivation just like constant feedback.

Another of the authors shown in the study of motivation is Yee (2007) who talks about the types of players. We must bear in mind that depending on the player who experiences it we will have to stress some or other aspects. In this way, there are assassins, conquerors, explorers and socialisers. Marczewski (2013) discusses socialisers, free spirits, philanthropers, destructors.... taking into account intrinsic motivation. If we bear in mind extrinsic motivation, players must be referred to as relaters, explorers, consumers and self-seekers. Then, finally, we must take into consideration that the main driving force behind play is fun. The concept of fun was proposed by Lazzaro (2012) and according to this author, there are four factors which give rise to

fun: the emotion felt in reaching the goal set, curiosity about the activity, the sensation of feeling good on playing and the fact of competing or sharing with others, all of which is related to motivation.

2. Competences and game strategies

Below, we will show some competences and strategies which can be used in the educational areas of the players. The competences acquired as well as the strategies used by videogames players, in many situations are similar to those sought by the school. For this reason we must bear these competences and strategies in mind when implementing gamified activities in class.

When we analyse what players do in their leisure time, we see that sharing, reviewing, collaborating and reflecting are some of the most salient competences. Players share and review contents, upload them to and download them from the Internet, all of these different activities are for in-depth exploring. Having done this, they share with others who are looking for contents and, at the same time, upload their work, and exchange interesting points of view about these. At school there are benefits to sharing contents and reviewing them, searching for information that supports the explanations of the teacher and helping others to upload their progress as well as establishing dialogues about the contents given by the school among the students. As for video games, in many situations sharing leads to collaboration in creating output, in the division of work and in some taking on leadership in order to have a stronger and more efficient organization. At school it is interesting to create from the contents worked on in class, divide the work between classmates or collaborate to achieve a better result and nurture leaders who take care of the other users. Play competences and strategies may be beneficial at school and for this reason we must immerse ourselves in these activities and bring them to class. At first, this will mean losing control or chaos but they will take shape gradually as we make progress with them.

Below, I will indicate some research results carried out at the Universitat Pompeu Fabra, for the project *Transalfabetismos. Competencias transmedia y estrategias informales de aprendizaje de los adolescentes* (*Transliteracy, transmedia competences and informal learning strategies for teenagers* (Ref. CSO2014-56250-R) which was funded by the State Programme for Research, Development and Innovation aimed at Challenges in Society, within the framework of the State Plan for Scientific and Technical Research and Innovation 2013-2016.

An example of this is the interview to subject X in which the preparations for a game session are commented on:

'[Do you play with others? Do you have groups?] Yes, we play with friends. We talk on Skype. Well, we are going to go to that house, we are going to destroy it, bring the C4. Bring the explosives to blow up that house. Then, we have a good time, we laugh, look what this guy has got.... [Are we going to take it from him or not?] Of course, we'll take everything from him. Afterwards, there was a sort of search for (unintelligible), we tidied the house and left it like that. Or we go in and rob his house.'

When at school we suggest some collaborative tasks, some natural competences should arise from them. In many situations, teachers must guide the work, not just as regards output and objectives but also in providing guidelines (such as how to work, how to organize themselves...) to follow so that the result of the work is good. The players are independent and prepare their sessions in order to achieve the best results. (Gee, 2004, p. 87).

Another interesting competence for most players is reflection. Reflection on the characteristics the players have and moves, as well as the video games market. All of this is typical in video games activities. The players play but when they come across difficulties, reflection is crucial. They ask questions such as: Why can't I make progress in this scene? Why does this character get in my way? How can I reach my objective and have the highest score? These are some of the frequently asked questions when we play.

In this example, subject Y reflects about one of the players. They do not like some features of his behaviour.

'[and as this is the protagonist, does he have any feature you like? Well, angry or happy, or what he is like, or there are no features] He is very proud. [Why do you say that?] Because he's always talking about himself and never about the others. So, he likes himself a lot....[what do you mean he never says anything about the others? Good things?] Well, he just talks about himself. So I don't think that's right. [Why? What are you saying?] Because I don't like it when I'm told about things other people have done. [but about him, what are you saying?] Instead of the whole army killing them, it was just him who killed them. So, I don't think he alone has killed 100 people. [Right. Yes, like he's bragging, right? All the time] Yes.'

In reflection, teachers intend our students to reflect on the different contents, on the story characters, about current information, about our language and the guidelines, amongst other things. It would be very

beneficial and learning would be more in-depth than, what there is today, in most situations. Players reflect because they must do so if they don't want to become blocked and stay on a screen until they get bored. They know that stopping to think is essential for reaching the game objectives. (Gee, 2004, p. 32). Stopping and thinking about how to do it better is perhaps the essential competence for making progress in any area of life. This is a fundamental competence for teachers and students if learning is to be in-depth. These competences are developed together with a series of strategies, all of which complement each other and whose purpose is always to receive the prize or, in many events, the satisfaction from merely playing.

Acquiring video games, both purchased and hired ones, is crucial. In most situations today, players develop the story offline to prepare the game online in which they will be seen with other players. They will have to share experiences, collaborate and compete against each other on many occasions. It seems interesting that just like us teachers when we prepare our classes, our students do the same. Working in this way, progress would be immensely greater and more beneficial. The teacher usually pushes his or her students to prepare them for exams, but they are highly lacking in independence and motivation. This hinders in-depth and critical learning. (Gee, 2004, p. 132).

Another strategy is to play video games, but searching for the mistakes, or details normally overlooked when playing. Many players try to get ahead of other ones by replaying and looking for the details that will lead them to win, to be stronger than their rivals or also to collaborate more efficiently. This is closely related to testing in order to choose the favourite game carefully and it is done to pick the right game. One example of this is subject X:

Well, I can put on a saga which I have liked a lot too. [But is it the same type?] No, it's another type. Because I don't think of myself as somebody just with a role. I give every game an opportunity and then I see if I like them or not.

At school nowadays, asking students to choose contents may be risky. Perhaps they do not have the best criteria and this may be disastrous and of little benefit. However, doing this would be beneficial as it would also be a sign that our students are motivated and mature. Moreover, teachers would follow a successful guide, and we would channel our contents towards theirs until a common point is reached.

In many situations players record moves and they share them online for the sake of doing this. Sometimes they share with friends and other times with the general public. However, in other situations they teach others and show the details or mistakes the game has. In this way, they show others how to play. Many of these players are highly popular guides who have many followers. These student tutors are an excellent idea for our school. There are educational areas which use them where older students welcome the youngest ones and guide them in their first months. They are students who enable the class to go at a good pace and who help their classmates... it is a highly enriching activity.

Another strategy which is a feature of video games is to use tricks. It may seem that it is not very appropriate to do this at school, but we need to qualify this. Students break the rules and programme new game techniques which improve the games and are conducive to reaching the objectives faster. In most situations these tricks are shared online. Players participate in these and even the creators learn from the users themselves to make new versions or updates. We could call it cheating, but in many situations it would be more appropriate to say, creating new tips or techniques for improving the game. To give an example of this, there is a page which a player has dedicated to giving tips on Grand Theft Auto, an 18 rated video game, which is played by many teenagers. This justifies using it because games for their age range are not interesting to them, subject Z said. '(...) [Ah.And that, what is it? the tricks application?] Yes, enter "GTA 5 tricks" and you download the application. [and now you look for...] And now you download... and there you can see the tricks.' In the world of video games, the players break the rules to improve both their performance and the game itself. They also develop their own rules and reach a consensus about them with the other players in order to reach all the objectives faster and more efficiently. This is also beneficial at school. The teacher is no longer the highest authority in knowledge. Now we are guides for preparing the students for an ever-changing society. Contents are constantly updated, not just as a result of the teachers collaborating, but students can also do this independently and share these as well.

Furthermore, taking into account the life skills proposed by the WHO⁴ we can state that the competences related to independence and reflection on the game are closely related to self-knowledge, players must know themselves. In play it is crucial to identify the most appropriate resources and to make progress. Empathy with others shows adaptation and developing with other ones to improve, which is a fundamental competence in players. Assertive communication and decision-taking lead to good strategies for overcoming difficulties which there are at any time in the suggested adventure. Critical and also creative thinking are related to a way of thinking which makes decision-making unique and as beneficial as possible. The game is also unique as each player creates his or her own adventure taking into account their needs and resources. These as well as handling tensions and emotions improve our morale and enable us to move

forward in the game. In the same way, preparing our activities or looking for mistakes which will lead to failure, as well as creating new intervention strategies require interpersonal and creative skills, which are a top characteristic in players.

In short, the competences and strategies related to play can, at least, at first sight, be used in schools. Previous preparation and testing before tackling final contents are keys to learning. In the same way, searching for mistakes or hidden details in a first reading is necessary in a society in which details make the difference between professionals. For their part, sharing contents and collaborating in their acquisition, development or extending them is also fundamental to the educational community. Finally, breaking the rules and creating new contents seems to be something beneficial to anyone and critical and creative skills must be some of the pillars at school today.

Bourne and Salgado M. (2016) indicated the power video games have in education, and which has motivated schools in the United States to nurture gamification in order to develop competences and strategies inherent to the school. They quote the Games for Learning⁵ summit in New York in 2015 in which videogame development experts, teachers and students participated in the search for pedagogical strategies which can be used at schools. They also refer to the first public state school in which the search for new learning by means of video games, Quest to learn⁶ created in 2009 in the city of New York, is the objective. They also mention other summits, congresses or research groups whose objectives are to study the relationship between video games and education such as Barcelona Games World⁷, International Congress of Video Games and Education⁸, ALFAS group⁹ or Game for Change¹⁰.

3. Gamifying classrooms

Having discussed the key items of play, motivation and some of the most significant play competences and strategies, we need to ask how play can be used in settings where users are generally demotivated, in formal education settings where users may show a certain degree of extrinsic motivation in some activities, but where intrinsic motivation is little seen. Therefore, studying the elements of a play system is crucial for motivating students. Furthermore, it is important to know how to adapt it to this context, which in many situations is a hostile one, in order to reach the goals set.

Before designing a gamified system for a formal secondary school education class, the play design or gamified system must bear in mind what our students are like. We might say that after some experiments with 14 to 16 year-old students in formal education environments, the same design may work in some environments and in others it might fail terribly; and despite studying the context they are in and the students themselves, the design may fail. That is, it can never be fully guaranteed that the play activity will work. For this reason, taking a few precautions before beginning this experiment may prevent some setbacks.

When we talk about understanding what our students are like, we mean talking to them about their class work. Of course, I do not think we can carry out an exhaustive analysis on them, but we could have a debate or talk about what they think about play as a way of reaching the objectives set in their academic year. The responses probably range from highly optimistic and enthusiastic to very reactionary and incredulous. The methodologies used up until that time will have a decisive influence. There will be students who are more familiar with them and depending on their experiences will transmit their impressions to the group and they will no doubt have an important influence over the others. This is not about "sweet talking", but being as sincere as possible about what the activity will be like, observing and waiting for reactions. This first contact will help us set the activity in motion. We reflect and they do too. We have then made progress.

Depending on the activity we wish to put into practice, we will also need to analyse the level of this content and strategies. Here we may carry out an initial test in which students show us the skills they have so far and in this way they can channel the game in a certain way. Designing, bearing in mind the level our students, have will make our objectives balanced.

It is also interesting to analyse the context in which the experiment will develop. At public institutions technology is scarce, classrooms small and full (30-40 students), classes are 50 minutes long approximately, there are excessive topics to be taught, and the external tests are pre-set.... Another of the features that have an influence on our work is the *modus operandi* at the centre. There are centres with leisure programmes established and accepted by everyone where innovation is something that is valued more and more and there are others in which more traditional methodologies are followed and the inertia of the teachers and students prevents change, although it must be said that teachers know that teacher-centred classes and the concept of the student being the recipient of contents is an out-of-date concept. Today, although change is slow, the teaching community see the need for it. In recent years, universities know that

in teacher training, it is crucial to provide innovative techniques and strategies so that future teachers know that these interventions are beneficial.

When all these elements have been touched on and they have been considered as far as possible, we can start to design our experiment and adapt gamified systems to our classrooms. To begin designing a gamified system, we must know the most salient elements in play and have played in order to have an idea of what our activity will be like in practice. Therefore, we must bear in mind mechanics, dynamics and possible emotional responses when playing.

As stated on the different blogs on this topic, gamemarketing and gengamer, the mechanics of a video game describe those items which can and cannot be played in a video game, the set of game rules with input and output which cause changes to the system.

We must understand games as complex systems defined by mechanics and rules by which players interact with the system choosing a range of behaviours, although the rules may give rise to certain behaviours. (Latorre, 2011). Avedon, (2015), in his book *The Study of the Games*, stated that mechanics are closely related to interaction, which in turn is subject to rules; therefore the mechanics describe what the player does, how he or she does it and the rules followed for doing this. For his part, Sicart (2008) talks about mechanics as interpretations players make on interacting with the game system, and as an inherent feature of video games, where there is sometimes unforeseen playing. In many video games there are a multitude of mechanics and their tactics and strategies are great opportunities or risks. (Latorre, 2012). Therefore, mechanics, dynamics and emotions are very closely related since the first of these affect the second, which in turn affects the third in a certain way (La nigromante, 2017).

To set up the mechanics of a video game, some points to consider when developing it are experience, ability, reputation, prizes whether these are medals, rewards or classifications, attracting students by giving them challenges or missions which lead to goals which are always reasonable, making players feel they own the game by means of personalizing their avatars, showing how the players are progressing by levels and "hooking them in this way" (Teixes, 2014). The mechanics of a video game makes it succeed or fail. So, we must understand them as being crucial elements in the design of these games. It is important to know that developing good mechanics is essential for considering the platform on which they are going to be designed and making the most out of them.

The mechanics are the basis of the dynamics and the emotions that we will cover below. Both some and others make the player experience fun when a game is tackled. Knowing what the dynamics are is also crucial for designing our play system. We understand dynamics as being the rewards for goals reached, the status the users have which is closely related to their achievements, a means of socializing in a community of players ,competition, altruism, feedback and fun (Teixes, 2014).

As stated on the indiegamesES, blog, dynamics are those situations created by the player with the mechanics given. These are actions which are created from the operational mechanics of the player and which determine how the rhythm and the game objectives change over time as referred to in Gamer Dic. In short, dynamics are closely related to mechanics. They are game modes played bearing in mind how the player interacts with the game elements. According to Pedraz (2017) we understand dynamics as being the processes of socialization, debate, reflection, focus, status, participation, and integration.... With them, it is evident that both mechanics and dynamics are closely related and the one cannot exist without the other, That is, play and video games need both of these to exist.

For its part, the aesthetics or emotions in a game are the responses a player gives from an emotional point of view on interacting with the game system and which mark how the player will feel on an emotional level. The emotional responses of the players must be understood as empirical pleasure, as a fantasy recreation or as a narrative, as a challenge and also from a social and camaraderie point of view, as something to be discovered or a mere discovery.

There are certain salient types of these. Firstly, the sensation or pleasure felt from games which are, above all, visual, which makes it possible to immerse oneself in realistic and pleasurable scenarios and for a player to get into the role of the characters. In this respect, fantasy can also be one of the emotions that come out in the game and the player may feel immersed in a fantasy world. Competition is another of the emotions which may draw players to the game. Secondly, social players make the player feel that he or she must rely on the others to make progress. Discovery and expression are other emotions, as well as the mere pastime some games provide. We must point out that it is very common in many video games to share different strategies to make the players excited, although one of these stands out above the others, as stated in the indiegamesES blog.

To sum up, the video games elements enable the player to interact with the system bearing in mind a series of rules. These actions lead to mechanics which will be the cause of success or failure in a game. When these mechanisms become ordinary and the players responds to patterns that are conducive to them moving forward, they will feel satisfied when they use these dynamics, and will feel good and that they are having fun.

Moreover, play implies developing an activity which is never linear. When we play there are jumps, stops, going back..... These must also be included when designing gamified systems. In the book *Gamificación: fundamentos y aplicaciones (Gamification: basics and applications)*, Teixes (2014), loops and progression loops are dealt with. The former shows the route a player takes in the short term, where the motivation to do something takes us to a second phase, an action, and we conclude with feedback or a reward. This route may never end, but must be accompanied by a long-term route, the progression loops. The progression loops are paths throughout the whole game whose aim is to arouse the interest of the players and "hook" them, feed their desire to "know" about the game and to master it. Play is based on repeated actions, where the starting point is the motivation to take action and we need feedback. All this process goes from initial moments which develop when progress is made until learning is consolidated.

Having arrived at this point, it is clear that a gamified system must take into consideration how objectives are defined, the why, how behaviours are defined, the what, and how the players are defined, and for whom. Additionally, coming up with the activity loops adds fun to all of them and ensures the right tool is used, that is, asking how. When we carry out a training activity, the following situations may arise: difficulty in concentration, previous level of knowledge is too high, the studying environment is uncomfortable, influence of emotional factors and lack of motivation to learn, amongst other issues. These situations may be solved by the use of play strategies such as levels, fun, motivation, immersion.... (Teixes, 2014, p. 50).

4. Learn by playing

At this point we show the practical data, the facts, the gamified designs and games put into practice in class, and some reflections on the experience of the teachers which have put these suggestions for play into practice. All of this reveals, firstly, how satisfied teachers are in these ventures, and, secondly, the clear progress towards improved learning. These experiments have been taken from the book *Educar jugando: un reto para el siglo XXI (Educate playing: a challenge for the Twenty-First C)*. (2017) in which play experiences in class with good results are shown.

Teachers are one of the main driving forces for change when using play in class, they are the drivers, designers, creators... at first. Recio (p.181), speaks about courses taught to teachers about play methodologies and how at first they feel awkward about using games, although when they are told not all the game must be used, but just one part of it that may be useful for the activity, they show more motivation in putting this into practice. The author states that playing is learning because when we play we explain rules (linguistic competence), we keep scores, we know if somebody is doing things correctly, practice leads to improving (learning to learn) losing or making mistakes has no consequences. Moreover, in many events, research when we play is inherent to that specific game (p.185).

As regards role-play games, from our point of view, these are one of the most beneficial strategies for learning. They are normally easy to set up, they do not require expensive instruments, nor very elaborate designs and the results are pleasing and unexpected. In this respect, narrative experiences surpass initial expectations. Moreover, they nurture creativity and collaborative work, two of the most efficient strategies for acquiring competences which are opportune in a real and current context. Socías indicates that putting into practice role-play games arouses the motivation of students and their desire to keep on playing. We are told about an experiment in this book, a role-play played out with the Tolkein mythology as a reference point and the students were delighted (p.79).

Recio, gives us a practical example of how to use role-play game in class. We are told that play must be a starting point, the motivation we wish to nurture. Playing 100% of the time in class is not necessary, the author states. From play, activities which are favourable to class work will arise. From the atmosphere created, activities will arise related to literature, describing characters, making comics or small narratives, writing adventure diaries, analysing fashion in different periods, setting the scene, activities related to history... In short, role-play is the heart and what remains is to develop a play-based didactic programme (p.89). In another section of the book, the Fabula project is presented whose main aim is true READING, not just reading as a habit but learning to be a reader and enjoy the experience. Apart from reading, users are invited to write and edit. "Fabula" is a narrative game with a deck of cards, an hourglass, some illustrations, characters and scoreboards. From these items, a story is narrated among the players. One plays the

narrator who chooses the scenario of the potential story and the others choose their role to be narrated and as the game progresses, they will solve the problems set by the narrator by picking cards (p.232).

Another teacher, Redondo, explains creating role-play games in the social sciences class, where play, that is, play-based learning, is an actively practised methodology. This is about creating a game from a didactic sequence. The author shows some games used in class whose end products promote learning, one of which is world peace game¹¹. In relation to his personal experiment, the author talks about the games created by his students. In history students created *Escape from the Gulag*, inspired by contents related to the Russian Revolution, and "First World War" based on events in this war. From studying the context and features of these two historical periods, students created fun and interesting games (p. 102).

Maté tells us about role-play in history. By using cards showing characters and their abilities, students will have to play characters at different times in history. He shows many examples of potentially beneficial role-plays for this and other subjects. Role-play arouses interest in different stories, whether these are real or fictional and also promotes both written and oral expression skills as well as reasoning strategies in order to gracefully meet the challenges set bearing in mind skills and obstacles. *Ludus Mundi* was created with the need to change teaching models. Teaching to be and not to have is the end purpose (p. 141).

Alhambra talks about role-play in class (p.124), He explains how he created his role-play games using some of the contents taught in class. He tells us that all began in the art class making some polyhedrons which ended up becoming dice. The dice which had 12 and 20 sides ended up being those needed to play the different games. He adds that his students ask him to play and they feel very motivated in each game. In these games with the problems/challenges, contents from the curriculum are set that they themselves search for and analyse and later transfer to paper in order to choose different prizes. Moreover, the points gained in each game can be accumulated for others and they can be used to buy objects that will be needed to reach certain objectives. All of it is fun which helps contents that are probably often tedious be taught (p.245).

As regards the games in class, the teachers show some of these products and their uses in class. In many situations, the games are not used as they appear in their manuals. Their rules and elements are adapted so that they can be better used with different materials and groups. The games chosen in these examples prioritize narrative and their objective is to create stories or change them.

Tomé, psychologist, explains the game "the legend of the five rings" played in class. In this game every player creates their own character based on Japanese culture. The teacher shows some clan characteristics and the students identify and design their character. (p. 45). This author talks about "Faraway", a card game in which the group must create its own stories using cards. These symbolize a fantasy world made up of stories and situations taken from daily life. Both categories are mixed, the result of which is new tales.

In this book, Campos, a psychologist, shows us an experiment with games. First *Imagine* is described, a card game, made up of pictures, enigmas and points cards, an illustration game in which the illustration must be guessed by means of the cards. Playing this game was new to the students. As the group played the teacher observed that they had to pay attention and concentrate, which requires mental agility to "win". In addition, creativity was an important value as was reasoning. From this observation, the teacher uses the game to extend the possibilities of using it in different ways such as to make group presentations, to work on historical or geographical contents, to nurture oral and written expression, group work..... (p.95). In another chapter of this book, this author tells us about Story cubes, small dice with infinite potential with images which promote oral and written expression and reflection on behaviour or emotions, amongst other things (p. 136).

Sánchez Montero suggests creating a video channel about play. On one such channel, students at his centre talk about board games played in the toy library. The act of creating videos is conducive to more in-depth oral communication. Students must prepare their speeches thoroughly, bearing in mind not just their speech, but also factors related to it. He also suggests games for learning mathematics, indicating that calculating with a pen and notebook is very boring and many games can turn this into something dynamic and fun. (p. 201). In another chapter Manuel Sánchez talks to us about "Faraway" which we mentioned above. Another of the games chosen by this author is *Ikonikus*, a card game which we can use to create stories (p. 215).

Regincós was in charge of putting this project into motion and states that it concerns using games as an educational tool, toy libraries with board games which promote competences and skills connected with cooperation, decision-taking, speech, agreeing, etc. In this article the author suggests some games and the competences they mainly promote and tells us that they can be adapted. 'Woofly' promotes

processing speed, 'Fantasma Blitz' stimulates reasoning capacity, 'Ikonikus' works on logical-mathematical thinking, 'Secret Code 13+1' improves ability to concentrate, etc. (p. 145).

At another stage in the book, Gonzalo talks to us about his experiment, the results and uses of play and discusses "Timeline", a game in which users construct a timeline bearing in mind a certain topic. He tells us about one of the activities he carried out with "Timeline", which resulted in a survey to users which showed competitiveness and creativity were two of the most salient factors. The game showed its potential through the acquisition of competences and learning strategies (p. 165).

Pardos, primary education teacher explains the potential using play has in language learning. He talks about games for making stories such as Story cubes, and Plickers for group sessions in which speed when discerning information is valued. He shows us the Class Dojo platform which is a pillar in which the students accumulate points for displaying a good attitude and behaviour in class. These points will bring them gifts in the day-to-day classes. He also talks about Letra a Letra (Letter to Letter) which explores vocabulary contents in-depth... Moreover, he talks about other games that can possibly be used in language learning with uses aimed at the contents foreseen in the subject. (p. 260).

Lastly, at the Barcelona Faculty of Education, Caramé suggests a series of games to the students which have given very good results. Some examples of these are "Marx and plasticine", "White pictures", "Pandemic"... Kahoot is used for evaluation. (p. 66). This last tool has been seen as highly appropriate for memory training and for incorporating mobile technology.

From my point of view, all of these are interesting proposals and are favourable to working on in class and with them the motivation needed for in-depth learning can be achieved.

5. Conclusions

At this stage, we can say that play is a good learning strategy, games or play elements adapted to learning contexts work and using them generally gives good results. At the start of this article we stated that play should be an item to take into consideration in class due to the potential it has. Then we looked at the key elements of play and their possible uses, which features were essential for achieving the best results, and, finally, we gave some practical example of play in class to validate our initial posit.

Therefore, using gamification in class is a strategy that is being used more and more in formal learning settings. Education professionals have shown the benefits and techniques that can be taken from it. In this respect, it would be unwise to pass over this type of methodology at a time at which our educational system needs in-depth transformations and updating, not just to be in line with the times we live in, but also to be in tune with our students and to be able to provide them with education that enables them to make progress in vital learning.

Among the most salient benefits play provides, we must stress motivation as there are many discussions about how tedious the contents taught at school are, how bored school children are, how demotivated they are in general in an educational system which is behind the times. Motivation, an intrinsic feature of play, promotes the teaching of dense contents to students in a more attractive way. This leads to a system which is enriched with these activities. Another benefit of play is the competences, skills and strategies which play promotes. It strengthens revision, sharing contents and working with others as well as reflection, a fundamental competence for making progress in any sphere of life.

As for the techniques which can be used in play, it must be taken into consideration that when a game or video game is created, on many occasions nowadays the creator shares the play moments with the players in real time. The players are provided with a series of initial features which as the game progresses can be changed or turned into others. In the same way, when we begin a class, the activities foreseen may become others which are very different. Many factors influence this such as the students, resources and the attitudes to the activity. We must be aware that it is not just the students who learn nowadays, but also the teacher. Activities become enriching with the contributions made by everyone. Output may not just be enriched with the creations and ideas provided by the students. The way it develops may also change and even how it is designed may be the responsibility of everyone, teachers and young learners alike. It is certain that these changes are more conducive to output which promotes consensus-based learning and which is in keeping with everybody's needs.

As regards the feasibility of using video games in class, this is complicated. Anyone who has had the slightest involvement with video games knows that they can be very time-consuming and there are some minimal technological resources required for playing them, although these are becoming more and more accessible. Both time and resources are scarce in our classrooms. These are the main impediments to

playing video games whilst we give our classes. Perhaps, for this reason, gamification is more accessible to teachers. Game techniques, and prizes, maps, dice throwing etc can be used without needing any complicated devices, or even without computers we can play or use play techniques.

Therefore, the school can use play for teaching and as a learning strategy, and the experiments shown in the last chapter provide us with some practical data and show us that play is both feasible and beneficial. If we surprise our students with strategies that motivate them and which they find fun, it is certain that learning will be rich and fruitful. Promoting basic competences and strategies using the motivation students have, will have a positive effect when assessing our experiences. Pedraz in *Educación jugando: un reto para el siglo XXI (Educate by playing: a challenge for the Twenty-First Century)* (2017) tells us how important surprise is in hooking users before play. How can we surprise them? The first thing to do, according to the author, is to attract their attention with an appealing design, using chance, weaving in concepts in new ways, using secrets, suspense and mystery, three attractive elements which can hook users, which are conducive to having a well contextualized narrative which will make users feel motivated and later on hooked (p. 150). A teacher who plays, the "playful" teacher firmly believes in *homo ludens* and tries to create a theoretical framework bearing in mind what they are passionate about: play. In this book there are some phrases on play coined by famous people which endorse the idea that play is good for learning. Henri Matisse¹²: "A creative person is curious, flexible, persistent and independent, with an adventurous spirit and is passionate about play". O. Fred Donaldson¹³: 'Children learn whilst playing and, what is more important, whilst they are playing, they learn to learn.'

In short, play benefits the acquisition of any type of learning. Bringing games or play elements to class which have been adapted to our contents is something highly beneficial, not just for our students, but also for us teachers who understand that learning must take place naturally. If play helps us motivate and interest our students, it is obvious we must bear this in mind in our work.

6. Bibliographical references

- [1] Aparici, R. y Silva, M. (2012). Pedagogía de la interactividad. *Revista Comunicar*, número 38, v. XIX, 2012. *Revista Científica de Educomunicación*, 51-58. <http://dx.doi.org/10.3916/C38-2012-02-05>
- [2] Avedon, E.M. and Sutton-Smith, B. (2015). *The Study of Games*. Ishi Press International. (United States of America). Available at <https://goo.gl/HcRj3Z>
- [3] Bourne, C. y Salgado M. V. (22 Diciembre, 2016). Los videojuegos pueden transformar el aula [Blog message blog] Available at <https://goo.gl/JWPMRy>
- [4] Callejo, M.J. y Viedma, A. (2005), *Proyectos y estrategias de investigación social. La perspectiva de la intervención*. Mc Graw Hill. Spain.
- [5] De Diego, R. (13 Febrero 2018). Mecánicas 1: lo 'molón' de los videojuegos. [Mensaje de blog] Available at <https://goo.gl/LSND6N>
- [6] Del Cerro, G. (2015). Aprender jugando, resolviendo: diseñando experiencias positivas de aprendizaje. *XII Jornadas Internacionales de Innovación Universitaria Educar para transformar: Aprendizaje experiencial*. Available at: <https://goo.gl/x6Z70t>
- [7] Dinámicas. (20th June 2016). [Blog message] Gamer Dic. Diccionario online de términos sobre videojuegos y cultura gamer. Available at <https://goo.gl/dHFYVE>
- [8] Frasca, G. (2009). Juego, videojuego y creación de sentido. Una introducción. *Revista Comunicación*, número 7, Vol. 1, 37-44. Available at <https://goo.gl/VA2rdZ>
- [9] Gee, J. P. (2004): *Lo que nos enseñan los Videojuegos sobre el aprendizaje y el alfabetismo*. Málaga, Spain: Aljibe
- [10] Gallego Gómez, C. (2012). Estrategia empresarial 2.0: Una aproximación a la gamificación mediante el estudio de casos. *Nuevos tiempos, nuevos retos, nuevas sociologías*. Toledo: ACMS, 843-853. Available at <https://goo.gl/mLjfTX>
- [11] Gómez-Trigueros, I. M.; Rovira-Collado, J. y Ruiz-Bañuls, M. (2018). Literatura e Historia a través de un universo transmedia: posibilidades didácticas del Ministerio del Tiempo. *Revista Mediterránea de Comunicación/Mediterranean Journal of Communication*, 9(1), 217-225. <https://www.doi.org/10.14198/MEDCOM2018.9.1.18>

- [12] González, C. (2016). Sistema de evaluación gamificada. En Contreras, R.; Eguía, J.L. (Ed.) *Gamificación en las aulas universitarias* (pp 39-54). Barcelona, Spain: Bellaterra. Available at <https://goo.gl/LHNmLe>
- [13] González Sánchez, J.L., Padilla Cea, N., Gutiérrez, F.L. y Montero, F. (2008). Jugabilidad como calidad de la experiencia del jugador en videojuegos. *This paper has been funded: International Commission for Science and Technology (CICYT) within the DESACO project(TIN2008-06596- C02, subproject 1 and 2); and the F.P.U programme of the Ministry of Science and Innovation, Spain.* Available at <https://goo.gl/XtVeHf>
- [14] Grande de Prado, M. y Abella García, V. (2010). Los juegos de rol en el aula, *Revista teoría de la Educación: Educación y Cultura en la Sociedad de la Información.* 56-84. Available at <https://goo.gl/GXJ5Qp>
- [15] Huizinga, J. (1954). *Homo ludens*. Huizinga-Scholvinck,1954. Emecé Editores, S.A., BuenosAires, 1968. Ed.cast.: Alianza Editorial, S. A., Madrid,1972, 1984,1987, 1990, 1994, 1995, 1998, 1999, 2000, 2001, 2002, 2004, 2005, 2007. 28027 Madrid; ISBN:978-84-206-3539-2. Legal deposit:M.3.639-2007. Available at <https://goo.gl/wxj9mp>
- [16] Latorre, O. (2011). Géneros de juegos y videojuegos. Una aproximación desde diversas perspectivas teóricas. *Journal Recerca i d'Anàlisi*, 127-146. (Societat Catalana de Comunicació) DOI: 10.2436/20.3008.01.81. Available at <https://goo.gl/UoIM7i>
- [17] Latorre, O. (2012): *El lenguaje videolúdico. Análisis de la significación del videojuego*. Barcelona, Spain: LAERTES
- [18] Lazzaro, N. (23rd March, 2012). The 4 Keys 2 Fun [Blog message] Nicole Lazzaro. Available at <https://goo.gl/Lraxqa>
- [19] Locke, E. A., & Latham, G. P. (1991). A theory of goal setting and task performance. *Academy of Management*. 480-483. DOI: 10.2307/258875. <https://goo.gl/DErYBQ>
- [20] Ludificación (s.f.)In Wikipedia. Available at <http://goo.gl/4HeHm9>
- [21] McGonigal, J. (2012): *Reality is broken*. London, United Kingdom: Vintage Books
- [22] Mecánicas, dinámicas y estéticas de un videojuego [Parte 1]. (22nd October 2010). [Blog message] gengamer. indiegamesES. Available at <https://goo.gl/1oYBfG>
- [23] Mecánicas, dinámicas y estéticas de un videojuego [Parte 2]. (5th of December 2010). [Blog message] gengamer. indiegamesES. Available at <https://goo.gl/GwKDUK>
- [24] Marczewski, A. (12nd August, 2013). A New Perspective on the Bartle Player Types for Gamification [Blog message] Available at <https://goo.gl/xaGsGc>
- [25] Pedraz, P. (29 Agosto 2017). Dinámicas y mecánicas: esas grandes desconocidas (o no). [Blog message] Gamificación y ABJ. Available at <https://goo.gl/nqLdZi>
- [26] ¿Qué es una mecánica de juego?. (11 March 2013). [Blog message] gamemarketing. Available at <https://goo.gl/Tf9bYz>
- [27] ¿Qué son las mecánicas de juego? Una aproximación al concepto. (9th July 2017). [Blog message] gamemarketing. Available at <https://goo.gl/UA56nd>
- [28] Ramírez, J.L. (2014). *Gamificación, Mecánicas de juegos en tu vida personal y profesional*. Madrid, Spain: Scilibro.
- [29] Rodríguez-Fernández, L. (2017). Smartphones y aprendizaje: el uso de Kahoot en el aula universitaria. *Revista Mediterránea de Comunicación/Mediterranean Journal of Communication*, 8(1), 181-190. <https://www.doi.org/10.14198/MEDCOM2017.8.1.13>
- [30] Ryan, R.M. and Deci, E.L. (2000). Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social Development, and Well-Being. *American Psychologist*. 68-78 DOI: 10.1037/10003-066X.55.1.68
- [31] Santamaría, F. (13 August 2013). La gamificación: las mecánicas del juego en los procesos de aprendizaje. [Blog message] Available at <https://goo.gl/LSND6N>

- [32] Santamaría, F. (31 July 2014). Los tres niveles a la hora de gamificar un curso. [Blog message] Available at goo.gl/nwiRRh
- [33] Scolari, C. (2013). *Narrativas Transmedia: Cuando todos los medios cuentan*. Barcelona, Spain: Deusto
- [34] Scolari, Carlos A. (2013). *Homo videoludens 2.0. De Pacman a la gamificación*. Colección TRANSMEDIA XXI. Barcelona, Spain: Universidad Mayor de Chile y Laboratori de Mitjans Interactius, Universitat de Barcelona.
- [35] Sicart, M. (2008). Defining Game Mechanics. *The international journal of computer game research. Game Studies*. Available at <https://goo.gl/hib6uh>
- [36] TED Ideas worth spreading. (2004). Mihály Csikszentmihalyi. Flujo, el secreto de la felicidad. [vídeo] Available at <https://goo.gl/oo5WYq>
- [37] TED Ideas worth spreading. (2009). Dan Pink en la sorprendente ciencia de la motivación. [vídeo] Available at <https://goo.gl/VKnVEC>
- [38] Teixes, F. (2015). *Gamificación: fundamentos y aplicaciones*. Barcelona, Spain: Editorial UOC (Oberta UOC Publishing, SLU).
- [39] VV AA. (2017). *Educación jugando: un reto para el siglo XXI*. Editorial Nexa Ediciones.
- [40] IV CIVE. (26 . 28-10-16): *De la idea a la pantalla*. Compendio de investigaciones sobre juegos serios. University of Vigo.
- [41] Yee, N. (2007). Motivations of Play in Online Games. *Journal of CyberPsychology and Behavior*, 9, 772-775. Available at <https://goo.gl/9WXUy5>

Appreciation

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Notes

1. El valor de educar. Fernando Savater. Review.
2. Novalis. Wikipedia.
3. RAMP Model. Relatedness, Autonomy, Mastery, Purpose. Marczewski continues the line of research of Bartle, using its classification and establishing this model. Available at <https://goo.gl/FRFTcy>
4. World Health Organization WHO Approach to life skills for healthy development in children and teenagers. 2001. Available at <https://goo.gl/1viUAS>
5. Office of Educational Technology. Games for Learning. Available at <https://goo.gl/zx77TP>
6. Quest to Learn. Available at <https://goo.gl/VekShm>
7. Barcelona games World. Available at <https://goo.gl/7H53xo>
8. Cive 2015. 3er International Congress for Videogames and Education. Available at <https://goo.gl/MCZ9ey>
9. Alfas. Play environments that favour learning. Available at <https://goo.gl/RsUr5g>
10. Games for Change Festival. 2018. New York. Available at <https://goo.gl/AeKxD>
11. John Hunter and the World Peace Game.
12. Matisse. Wikipedia.
13. O. Fred Donaldson: Article.

