ORIGINAL

"THE PROPHECY OF THE CHOSEN ONES": AN EXAMPLE OF GAMIFICATION APPLIED TO UNIVERSITY TEACHING

"LA PROFECÍA DE LOS ELEGIDOS": UN EJEMPLO DE GAMIFICACIÓN APLICADO A LA DOCENCIA UNIVERSITARIA

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ABSTRACT

The aim of this paper is to describe an innovation experience in the university classroom via a gamification proposal. In addition, the main results of the assessment of the experience will be identified.

The most relevant aspects of games were taken into account for gamifying: settings, challenges, scores and levels. The assessment of the experience was obtained from anonymous narratives submitted by the students to Google Drive once the experience ended. These narratives were analyzed with the support NVivo10 software. The students were greatly motivated thanks to the participative, active and collaborative environment resulting from the developed approach. These circumstances, where the good atmosphere in the classroom stands out, have favoured learning in three competence fields: How to know, how to be and how to do.

KEYWORDS: Gamification, university teaching, educational innovation, educational intervention, physical education.

RESUMEN

El objetivo del presente trabajo es describir una experiencia de innovación en el aula universitaria mediante una propuesta de gamificación. Y, al mismo tiempo, identificar los principales resultados de la evaluación de la experiencia.

En ella se tuvieron en cuenta los aspectos del juego más relevantes a la hora de gamificar: la ambientación, los desafíos y retos, los puntos y niveles… La valoración de la experiencia se obtuvo a partir de las narraciones realizas por los estudiantes al final del proceso, de forma anónima a través de Google Drive, siendo analizadas posteriormente con el apoyo del software NVivo10. El planteamiento desarrollado ha logrado una excelente motivación en el alumnado mediante ambientes de aprendizaje participativos, activos y de colaboración. Circunstancia que ha dado lugar a la adquisición de aprendizajes en los tres planos competenciales (Saber, Saber ser y estar y Saber hacer), destacando el buen clima de aula generado.

PALABRAS CLAVE: Gamificación, docencia universitaria, innovación educativa, intervención educativa, educación física.

INTRODUCTION

Improving the quality of university teaching has been promoted as a priority by the European Higher Education Area (EHEA) (Berné, Lozano and Marzo, 2011). This requires a profound renewal of teaching methodologies (Díez González et al., 2009), resulting in the development of educational innovations that involve students in their learning (Berné, Lozano and Marzo 2011). The conclusions put forward in the document 'Proposal for renewal of university methodologies (University Coordination Council, 2006) highlight the need to take advantage of the EHEA to make substantive innovations, especially in regard to teaching methods.

The EHEA advocates changing the model, going beyond the focus of the transmission of knowledge, and with a commitment to an approach in which the teacher becomes a facilitator of student learning, and students build their own learning process, in order to learn to learn and to foster their autonomy. To face this new challenge, the motivation to learn is more necessary than ever (Romero and Perez Ferrer, 2009), as it is one of the variables that has most impact on students' performance, according to the teachers, as well as in the opinion of the students themselves, who call attention precisely to teachers' lack of motivation strategies (Tejedor and Garcia-Valcarcel, 2007). There is therefore a clear need for the latter to adopt new ways of thinking, feeling and acting that encourage student motivation (Martínez González, 2011).

In this regard, a powerful strategy to motivate and promote student learning is gamification, as it is known in the Anglo-Saxon world. Gamification allows players (students) to increase the time spent on the task designed by the teacher and it also influences the psychological predisposition to the task. (Kapp, 2012; Zichermann y Cunningham, 2011).

Among the most widespread definitions of this new concepts is that of Deterding et al. (2011), understood as the use of game design elements in non-game contexts. Kapp (2012) points out that using game mechanics, aesthetics and strategies engage people, motivate action, promote learning and problem solving, all with the goal of modifying or promoting desired behaviors (Huotari and Hamari, 2012, Lee and Hammer, 2011).

Gamification is an emerging concept that has become a social trend with a large global impact, and in 2011 it began to spread in Spain (Game /Marketing, 2012). The enormous growth of videogames in recent years has been crucial to game mechanics being developed in non-recreational settings (entertainment, communication, education, health, etc.), with the intention of increasing motivation, effort, loyalty and many other positive values common to all games. Thus, for example, it can convert an activity that at the beginning may seem a little boring or not motivating for the employees of a company, the inhabitants of a city and students in a school into something attractive and exciting. Therefore, authors like Díaz Cruzado and Troyano (2013) and Piñeiro-Otero and Costa-Sánchez (2015) point out gamification's potential concerning education, alternative reality games and more specifically, university teaching.

The technological-social context of the agents involved in the university, especially those of the students, should be essential in university teaching. This context is seen as a great opportunity to encourage motivation, participation and the creation of a shared knowledge (Piñeiro-Otero and Costa-Sánchez, 2015).

There is a significant absence of studies in the national scientific literature concerning initiatives based on gamification at university levels. However, some works, like those of Cantador (2012), Cortizo et al. (2011), De Cea (2014) o Villagrasa et al. (2014), are a motivation to continue doing research in this field. The gamification approach proposed aims to determine its viability and suitability as a working methodology. It was implemented in a 6 ECTS credits compulsory subject thought during the second semester of the final year of the Physical Activity and Sports Sciences degree. Among the several approach of gamification, a model based on Role-Play was adopted, as it was the most suitable model regarding the educational aims of the projetc.

The main objective of this paper is to describe the experiment developed and to introduce the reader to the student's perceptions through their narratives produced at the end of the process.

DESCRIPTION OF THE GAMIFICATION EXPERIMENT

For the true potential of gamification to be realized, as Kapp (2012) noted, it cannot be reduced simply to establishing a reward structure according to certain actions taken by the players (students), but rather these elements must be accompanied by others that require the participants' involvement, such as commitment, narration, etc., and are the foundation on which to build gamification. Therefore, in the preparation of 'The Prophecy of the Chosen Ones' (name of the proposal presented here) the most relevant aspects of the game were taken into account when making a gamification of a particular activity. Among them, according to the guidelines of Kapp (2012), we included:

Commitment

We believe that education in values should become the cornerstone which underpins any intervention. Otherwise it is difficult for it to be deeply rooted enough to ensure the real training of teachers-educators (not just teachers) and therefore, the future of education. From this perspective we have tried to convey to students the importance of living this proposal not as a finite subject, where the goal is itself, but as a learning experiment that really enriches them and promotes their learning process, a meeting place from which to grow individually from collaboration.

The adventure begins with an act of great symbolic value in the game, and which determines its whole development: the public reading of 'The Oath of the Chosen Ones'. It summarizes the fundamental principles underlying this experiment and all players must accept it in order to be one of the Elected:

I, (each must speak her or his first name and family name), having freely chosen to be here, promise to meet with rigor and conviction each one of the principles that forming part of this group entails, such as: public-spiritedness, loyalty, love for one's fellows and justice.

I have come here to put my effort and experience at the service of the common good without more ambition than to live a learning experience that enriches and encourages me in my training. From now on I accept and hold that I am not participating in a conventional subject, but a proposal to which I am fully predisposed, because this is the only way to make the most of the valuable lessons that can be acquired from it. I am aware that misunderstanding will often be an enemy, and discouragement her ally, so that only my love for teaching and trust in the person that fate has placed in my path to guide me (with the best will and all his experience) in this exciting task will be the resources that I must never forget so as not to falter or fall away from the chosen path.

I accept and understand that the ultimate responsibility for my learning is mine and is subject largely to my degree of involvement, the reason why I will try to be involved to the maximum in this direction and to respond in time, effort and empathy to what I receive.

The commitment to a job well done, constant improvement, the tireless pursuit of creativity, the development of critical consciousness and dedication necessary to reflect upon, as indispensable prerequisites for learning and improvement, will become from now on the fundamental pillars of everything that I intend to do in this new adventure.

I comprehend that the collective benefit to which I aspire, through conviction of its values, will not be possible without my active participation in class and in all those activities that are set for me, so I shall endeavor to foster a climate of trust and collaboration that stimulates the achievement of this aspect. For this, I will also cherish the uniqueness of each individual and their contributions to the group, avoiding prejudice, recognizing the possibility of being wrong and looking for the predisposition to understand and accept difference.

From now on I will participate in all that is done in the name of Physical Education, so I assume the responsibility that this entails, acting accordingly to promote its prestige.

I will keep secret about all that I hear and see in this group because of this exercise and that is not essential to disclose it, whether or not in the domain of my profession, considering it a duty to be discreet in such cases.
If I faithfully observe this oath, may I be permitted to enjoy my life and my profession happily, always honoured among men; if I break it and perjure myself, may bad luck fall on me.'

This oath is expressed in the slogan 'Justice and Honour' which, besides being part of the greeting between the characters in this venture (with accompanying

gestures), and between them and the Oracle of the Gods (teacher), expresses the ideal of conduct that should characterize each of the *Chosen Ones.*

Atmosphere

Building a good atmosphere is a valuable element in the gamification of learning and teaching (Kapp, 2012). Narrative has been the main technique used in 'The Prophecy of the Chosen Ones', turning the subject into a parallel world (taking role games as a reference), where the atmosphere in which this adventure is constructed guides the players' steps, at the same time as it gives meaning to everything that happens in it:

'In a not too distant future the precariousness of the situation to which Earth has come will determine that life becomes again very similar to that of the Middle Ages (…)

One of the consequences of that new situation is the possible demise of Physical Education (PE), as stated in the Prophecy of the Chosen Ones (…)

That same apocalyptic prophecy leaves open a small window of hope, as long as the group elected to save the future of PE (coming from each of the four kingdoms existing on Earth) accepts that challenge (…)

Those who manage to obtain that distinction will receive the magic formula of Good Teacher, which will be tattooed on them and enable the subject to be saved. Once recorded on their bodies they will not be allowed to fail in the attempt and will receive the everlasting encouragement of the Gods of Olympus (…).

Within the plot of the game, each player (student) represents a different character who comes from any of the game's four realms (Velocity, Coordination, Communication and Orientation in Nature), which identify the four blocks of the curriculum content of school Physical Education (Health and Physical Condition, Games and Sports, Body language and activities in the natural environment). Each player's realm of origin is determined by the content block with which the student most identifies, or seems most attractive to them. And the kingdoms, in turn, are divided into different families (groups of 5-6 students), each with a firstborn (representing the family).

Objectives

The goals and objectives are central to the games and provide a specific purpose that will guide the player's action, while at the same time, they will become a reference that will let them know how near or not they are to achieving them. The ultimate goal in this adventure is to win 5000 points (proficient), which can be reached from achieving intermediate objectives (challenges and missions) that encourage the participant's involvement in the game.

Challenges and Missions

The individual challenges (among families or kingdoms) and missions have a specific goal: to develop different skills in the participants so that they achieve the highest level of competence at the end of the game (skills for teaching sport and physical activity). Each challenge is related to the characteristic attribute of one of the 4 kingdoms (see the section 'Points'). Consequently, before beginning, the families of the kingdom have the choice between 'benefit' or 'advantage', as described below, which will determine different bonuses and compensations based on the result obtained there.

Points

With each challenge and mission the players get a different score depending on the degree of compliance with the target that gives rise to it, or depending on variables such as time of delivery and / or quality of work involved compared to the other players, families or kingdoms. To the score for each character in different challenges (in collaboration with the family) will be added (or subtracted) the added bonus for the decision made when opting for benefit or advantage as shown in Figure 1
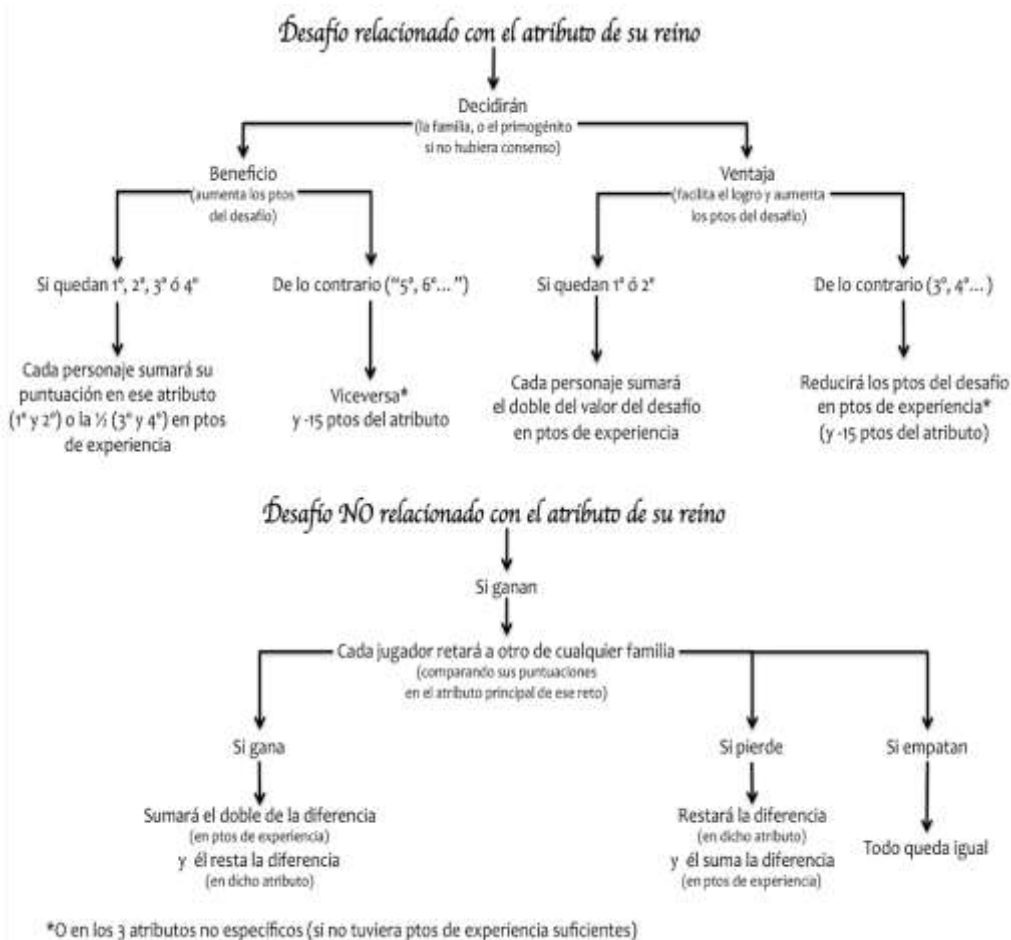

Figure 1. Additional bonuses on the challenges

The evolution of each player's points throughout the adventure is recorded on the character sheet, which all of them have (Figure 2), headed by the name of the alter ego and its image by which the player is identified as the character during the game. Furthermore, it is divided into four main sections: attributes, experiment points, life points and level of competition.

Figure 2. Character card.

The attributes represent the characteristics of each player, and refer to the main skills that characterize the 4 kingdoms (Velocity, Coordination, Communication and Orientation in Nature). These attributes (which can range from a minimum value of 0 and a maximum of one hundred) give rise to certain benefits or advantages in those challenges that are characterized by the specific attribute of the player's kingdom of origin.

Experiment points show the benefit accrued by the players as they acquire skills and / or demonstrating the challenges and missions of each day. They can also become the highest score of any attribute when a player sees fit.

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Life points symbolize the 'health' of the character. Everyone starts with the maximum of ten points and these can be lost according to penalties obtained (for breach of the rules of the game as, for example, not updating the character card) or defeats in the individual duels between players. These points can be recovered, at the rate of 1for every five hundred experiment points. Finally, the back of the card must be filled in daily detailing their playing history, with the events of each day leading to changes in their scores.

Levels

These mark the competence level that the characters acquire throughout the game, allowing the players to have a constant feedback of how they are placed in the game and thus, in the subject.

There are 4 levels: Postulant, Novice, Advanced and Proficient, with several sublevels among them (4 for Postulant, 3 for Novice and so on). All participants start out with a score of 0 and move up the levels through the experiment points accumulated from the challenges and missions. When a player accumulates five hundred experiment points a new sublevel has to be marked and experiment points return to 0. The player cannot go up a level without having the corresponding life points relating to it, that is, 10 for Proficient, between 7 and 9 for Advanced, etc.

Rewards

Physical rewards indicate the level reached by each player during the adventure. The badge used in 'The Prophecy of the Chosen Ones' is made of tin plate (Figure III) with a different image for each of the 4 existing levels. In addition, the sublevels are represented by a smaller plate with the game logo.

Figure 3. Badge models (tin plate).

EVALUATION OF THE EXPERIMENT FROM THE STUDENTS' PERCEPTIONS

METHODOLOGY

A total of 69 participants, who are trainee teachers in the Faculty of Education Sciences, took part in the experiment, giving their informed consent for voluntary participation in the study, after the purpose and nature of the game and its expected benefits had been detailed and they were assured of the

confidentiality of the process. All the names of students given later in this paper are therefore fictitious. 45 students (65.2%) have given us information from an evaluative narration (Bolivar, Dominguez and Fernandez, 2001; Pujadas, 1992). Their assessment draws on the principles of the interpretive paradigm (Husen, 1988), from the analysis of the emerging theories of the participants, to develop from the interpretation of substantive theories.

The compression of the phenomenon was carried out by qualitative methodology (Stake, 1995). Strauss and Corbin (2002) identified the value of this methodology not only to generate theory but also in grounding it in the data. In our case this was the meaning of learning from the gamification experiment as it was experienced. The information produced is analyzed from grounded theory because by basing it on the data it is more likely to generate knowledge, increase understanding and provide a meaningful guide to action (Strauss and Corbin, 2002).

Figure 4. Theoretical explanatory conceptual map.

The information in the narratives was obtained from Google doc (anonymously), which allowed us to export them to the software NVivo10 in database format. This process enables information based on the participants to be organized from automatic coding in this case. We will now start to identify the 'live categories' (Cuñat, 2007) that emerge to then build the 'Axial coding' and to proceed from a 'matrix code' to identify the relevant issues and their relationships (Figure 4 and 5).

FIGURE 5. Node tree generated from inductive coding

We then begin a deductive process of going deeper into the questions that are generated. The NVivo10 is essential in the process since it provides the survey and the comparison from scan tools that it makes available.

The ethic in the research is guarantee by the student's freedom of participation and by the evaluation process. The students were guaranteed confidentiality and anonymity.

RESULTS AND INTERPRETATION

The first matrix reveals two major themes that predominated for the students: the learning they achieved and the excellent classroom atmosphere generated by the proposal. Together with these methodology and evaluation were important, but to a lesser extent. This last aspect is very significant because one of the students' major concerns disappeared, probably brought about by the high value that learning assumed (Graph I).
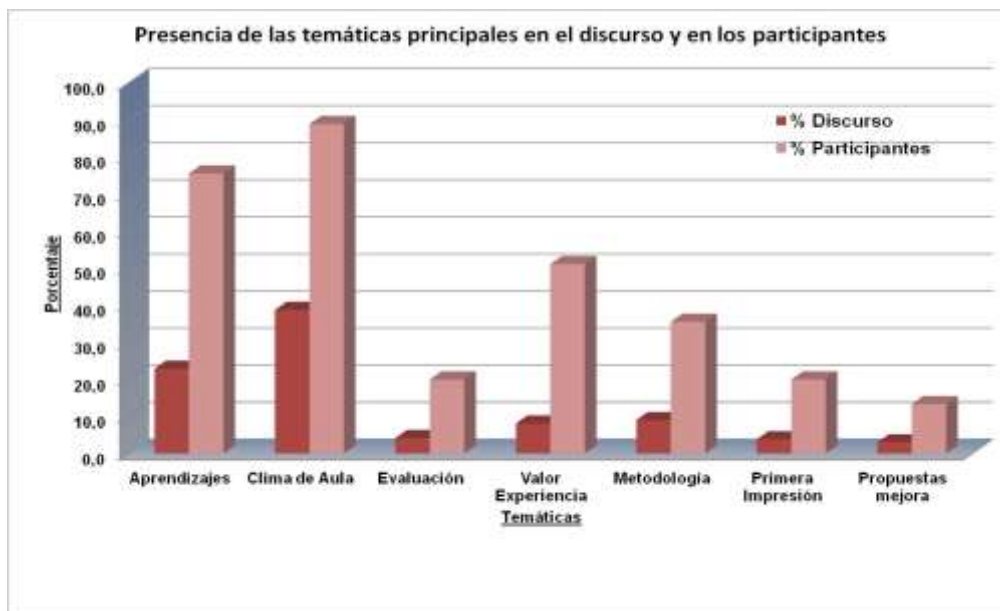
Graph 1. Presence of the main subjects in the discourse and by the participants

A synthesis of the above is found in the narration of the student, Alonso, who recognizes that 'at first it was difficult, I had the feeling of not learning the pure theory of the subject'. From this reflection he becomes aware that, although lacking traditional learning (Barbero, 2007), what was emerging was the need to build a scaffolding of learning to 'plan, organize our time for ongoing activities, set targets, and so on.' That is, achieve knowledge from the demands caused by the practice itself. This is possible because Alonso has the feeling that the classes are 'hard work' and the teaching of the subject is '... the ONLY thing that is done in the entire faculty and every day something new comes up. 'His assessment of the teachers is built from their values as people and he acknowledged that '... they have managed to win everybody over', even with an evaluation of 'excellent, innovative and motivating.'

WHAT DID THE STUDENTS DECLARE THAT THEY HAD LEARNT?

Four numeric values are particularly noteworthy and act as gateways to the relevant thematic discourse. 50% say they have learned to be 'better people,' 26% that they consider they will be 'better teachers', 23% have rediscovered 'learning from practice' and 20%, coinciding with Kapp (2012), have rediscovered the 'game' as an excellent learning tool. What does it mean when they say they have become better people? We can find some answers to this question in the reflection Jaime made, especially when he recognizes that the entire project has left him with the idea of being '...coherent with myself in all aspects of my life and I think if that is the basis on I have to ground my learning the way I am following is right.' They perceive that teaching means more than transmitting knowledge or conveying some of the cognitive, social and motor skills. They discover, as Miriam indicated, that above all it is '... the person, the student, and we have to build ourselves as teachers tomorrow from them.' When we change the focus and approach consolidated learning from the standpoint of training 'proficient' teachers we found that transversal and systemic aims emerge. This goes beyond the micro: to be competent to teach

sports, health, recreation, expressive activities, etc. And our attention fixes on the macro: education in capital letters: educating to build citizens who are critical, autonomous, participative, creative and unafraid to collaborate with others, approaches that coincide with those of de Trigueros, Rivera and De La Torre (2006). As the student Asier proposes to us, 'We train people who will appreciate our work by our teaching, our discipline is one more subject, not reducing our classes to mere lengthy recreation' This same student acknowledged that the objectives of the course had been achieved, to learn to '…design, plan, evaluate ... an educational programme based on what I want to achieve and not how I want to do it.' This nuance is what makes the difference. It is this leap from being a teacher built to give answers from a technical model to being a professional committed to the profession and with a reflective and critical approach to their teaching.

To change the perceptions of students about the classroom atmosphere, we have mainly focused on the students' performance as teachers. Over seventy percent referred to it in their evaluative narrations. The comments are all positive and directed to highlight three key aspects of their performance: leadership, humanity and mediation. Regarding the first attribute, Alejo makes it clear: '... I've looked more like an competent leader, a coach, rather than an authoritarian teacher. This teaching model coincides with the one proposed by Romero and Perez Ferra (2009) and Berné, Lozano and Marzo (2011). The secret is to differentiate between authority and authoritarianism. Authority is granted by the other. Authoritarianism is the usurpation of institutionalized leadership often from fear. Adrian talks about his humanity; he discovered from the project that '... the emotional involvement with students is absolutely necessary to influence them [students] significantly and to change their habits, ... if I go into teaching I will take that path'. But this perception is widespread among the participants, who have realized, as we said before, that to be a good teacher one must first be a good person.

Similarly, the role of 'mediator' is emphasized, which the teacher adopts in the teaching-learning process. Motivation is the engine that drives the student to reflect, research or create their own proposals. Nevertheless, it is not easy to break the inertia and think that the teacher does not teach, it is the students who build their own learning, and so there is a case like that of Miriam, who regrets that the teacher has not been ' the main character in this adventure ... I would have liked to learn more from him directly'.

Turning to how the students felt in the process, Lucas makes an excellent synthesis of this from his reflection:

> In this adventure I felt like the star of a movie. It's the only time ... where I have been given absolute freedom and I've seen myself as responsible for what I did and for my own learning, and I must admit that despite being tempted to take advantage of this fact I have been unable to do so, unwilling to betray that trust you have placed in us and because I've noticed that more important than a mark, a number, is my own training and my honour and dignity as a person.

Little more can be added to this comment. It sums up perfectly the idea of those students who seek to reinforce their potential as a result of the proposal: the protagonists of their learning, autonomous in their decisions, reflective, critical and above all ethical.

However, there are difficult barriers to overcome. We refer especially to lack of a culture of collaborative work. First, we would highlight the scant presence of discourse in the evaluative narrations and, secondly, when it does appear, it brings us back to the reality identified by various participants such as Nieves, who complains that:

> ... It is a shame that some colleague were not more involved from the beginning, but as you usually say, everyone has their moment and you cannot force those who do not want to; learning comes from conviction, and I know now some who regret not having taken more advantage.

Finally, we will close the evaluation of the experiment with the assessment that was put at the beginning of the proposal. The opinions on the method developed are mostly very positive. The participants recognize that transferring responsibility of this section to the student is enriching because they '... have been the participants and leaders in their evaluation. Everyone has seen ... their progress and their scores during the course of the subject "(Silvia).

However, it has also been difficult for them to understand some strategies, especially ones that transfer responsibility to their colleagues, since they question that '... sometimes other colleagues evaluate my work without sufficient maturity to appreciate that I had really done a good job' as Caesar told us. Some have felt at some point 'orphaned from their teachers' guidance in the formative assessment process, like Alejo, who missed '... that individual challenges were not scored and corrected or evaluated more specifically by [the teacher]'. It is clear that the level of maturity and autonomy of our students is very heterogeneous, and that many of them are still struggling to gain control of their own learning process. There are still those who have failed to discover, or whose teachers have not managed to make them see properly, the enormous impact that taking the step towards the shared teacher-student encounter will have on their learning, more specifically than a genuine process of tutoring can give. Moreover, whenever there is a demand from the student it will represent a clear example of this commitment to learning. And, furthermore, it will promote the necessary awareness of the process experienced that will lead to critical reflection and the subsequent improvement of the students' learning process.

CONCLUSIONS

This last section will be focused on the analysis of the student's perceptions concerning the gamification proposal.

It is shown that the proposal facilitates a relaxed atmosphere in the classroom thanks to the active methodology of gamification and because the final evaluation is no longer seen as the main goal which is in the hands of the

lecturer. These ingredients, incorporated to the teaching and learning process generate in the students a feeling of control and responsibility assumption that gives them the opportunity of substituting the usual goal of building learning only for obtaining a good mark by the pure pursuit of knowledge.

The narrated perceptions give us this view but at the same time, the difficulty to leave behind their previous education experience appeared. It is difficult for them to assimilate that it is possible to create knowledge without having to study principles and concepts. The need of a well-supported theory to make the practice possible and the omnipresence of the lecturer in the evaluation are ideas difficult to reject during only one semester. However, we have learnt that many of our students have realized that there is another way to understand the teaching and learning process concerning university as well as other education stages.

To conclude, it is worth mentioning the importance of acquiring second-level resources. Even though they are identified in the description of the skills that teachers should acquire during their careers, the truth is that they usually remain in the background in their teaching practice. Professional ethics, moral and social commitment and forging their own identity are aspects that are being as valued as being a competent professional.

It is time to turn the tables. The education based on the accountability should turn into one where the human factor is also important.

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