A gamified Experience for Motivating Students to Learn Literature

Sara Menchaca
Avellaneda School
Sodupe, Spain
smenchaca@avellaneda.eus

Ana Moya
TECNALIA
Derio, Spain
Ana.Moya@tecnalia.com

Leire Bastida
TECNALIA
Derio, Spain
Leire.Bastida@tecnalia.com

ABSTRACT

This paper describes a new teaching approach based on gamification with the following goals: to promote the learning of Spanish Literature to non-motivated third-year high school students and to provide teachers with an effective method based on game design techniques to teach Literature. A complete gamification experience has been developed to provide the most effective gamified learning experience able to awake the interest of the students in Literature, while assuring the knowledge retention of the concepts in higher grades.

The experience was validated among a group of 20 students of 14-15 years-old with very interesting and promising conclusions: students' and teacher's motivation were increasing along the experience and the students' final marks on the subject were 20% better that the same subject the year before.

Author Keywords

Gamification, Storytelling, Motivation, Engagement, Learning Methods.

ACM Classification Keywords

H.5.m. Information interfaces and presentation: User-centered design; Prototyping.

INTRODUCTION

Learning is defined as an increase, through experience, of the ability to gain goals despite obstacles [1]. A more extended definition describes learning as the process of acquiring knowledge, skills, values and attitudes, made possible through study, teaching or experience [2].

Part of this knowledge is gained through the educational environment. For that reason, the educational system must guarantee that every student can develop his/her full potential regarding learning. Each learner is unique and has unique learning experiences. What motivates learning, what triggers curiosity, and which tools and techniques could enhance learning are different for each learner. **Students need effective and interactive experiences that motivate and actively engage them in the learning process**.

According to several studies, we can classify the factors that affect the student achievement in learning in two perspectives: student and teacher. From the student perspective we can find, among others, the **motivation factor** [3]. From the teacher perspective, we can find the **learning model factor**, **the quality factor** [4] and the **attitude factor** [3].

This paper describes a new teaching approach based on gamification to provide students with a motivated and engaging experience to learn Spanish Literature while supporting teachers with an effective method to teach it in order to get better achievements of students in learning. The following sections provide a detailed description of this gamified experience and the results obtained.

TEACHING AND LEARNING METHODS

Learning does not mean only memorization but also **acquiring the skills and competences to learn how to think and perform in order to face real-world challenges** [5]. In the learning process, **motivation plays a relevant and important role**. Motivation is related to what moves people to act and why people think and do what they do. When motivation is applied to education, it is focused on increasing the interest of students in learning by balancing intrinsic motivation (driven by internal rewards) [6] and extrinsic motivation (driven by desired external rewards).

Some recent studies show that students who are motivated in their studies are engaged by four goals: **success, curiosity, originality and positive social relations** [7]. Both, teachers and students, despise repetitive work, that required little or no thought, and that was forced on them by others. Engaging learning stimulates their curiosity, allowing students and also teachers to express their creativity and foster positive relationships with others, by living different experiences.

Students who are engaged exhibit three characteristics: (i) they are interested in their studies, (ii) they try to do the best despite obstacles, and (iii) they feel happy and satisfied, sharing their emotions with others, when they achieve the goal [8]. This is because students learn by thinking, feeling and doing and the process of learning results from the involvement of the student in the experiences created by the teacher. As Confucius, an ancient Chinese philosopher, said: "*Tell me and I will*

forget, show me and I may remember, involve me and I will understand".

In order to provide students with higher doses of motivation and willingness to learn, innovative, creative and technological strategies for content provision should be applied. Gamified learning approach provides a good opportunity to develop experiences making learning more effective, efficient and enjoyable. However, in the domain of teaching Literature, no recent research works or initiatives can be found using gamification to design and develop experiences to be compared with the work presented in this paper.

GAMIFICATION FOR STUDENTS´ENGAGEMENT

Gamification is the usage of game-based mechanics, aesthetics and game thinking to engage people, motivate action, promote learning, and solve problems [9]. Thus, gamification is the application of the laws of game design to improve the user experience, in such a way that it becomes a "memorable" experience, making use of the following elements: tell me a good story (storytelling), include the most appropriate aesthetics and adapt it to the final client (aesthetics), implement it on the platforms where "it resides" (transmedia) and do not forget a good set of balanced rules that come from of the design of games that are based on pleasures to offer. The gamification strategy selects the appropriate game elements to drive the designed mechanics and dynamics by implementing engagement factors so that the experience guarantees the initial participation of students in the experience (the onboarding phase) and maintain in the experience (balancing phase). Narrative and storytelling usually involve people both on the cognitive level (to make sense of story content) and on the emotional one (by focusing on characters' feelings, traits, moods and intentions); a story can entail also sensory or spatial immersion if it is narrated by mixing multiple delivery channels or involves a person to take part in it (e.g. by role playing). This explains the high immersive potential of narrative and storytelling providing multiple opportunities for the users to get engaged in many ways in a story and consequently in its (possible) learning contents. Such "narrative immersion" can profitably be exploited both to create engaging games and to support learning at both cognitive and motivational level. This is why a core part in gamification approach is storytelling, which we explain in detail in next section.

GAMIFICATION STRATEGY TO LEARN SPANISH LITERATURE

In order to create the best experience in the context of Spanish Literature subject by using gamification it was essential to develop a complete gamification strategy project covering the following elements: establish the **objective** to achieve with the gamification with the **results** and **measurable indicators;** set up the **target group** with its **characteristics and preferences;** select the **dynamics** related to the motivators, the **mechanics**, related to the actions to carry on the experience that were translated into

the **game elements**. The **storytelling** associated, and the **aesthetics** are the most creative part of the experience which create the special glue that link all the parts of the experience. A total of two working months were needed to design the whole experience involving two gamification/game design experts and the literature teacher. The gamification strategy was designed using as basis the gamification framework (including different approaches and techniques explained later) that the gamification experts applied due to their knowledge and previous expertise.

This **gamification project** developed to learn Spanish Literature had a clear **objective**: **motivate students in the Spanish Literature learning process** to improve their knowledge and retain it to higher courses, and also, to **improve teamwork**, the **spirit of collaboration** and the sense of **belonging to a group**. For doing so, the gamified experience was validated among this target group: 12 girls and 8 boys of the third-year of high school (14-15 years-old), whose **objective in the experience was to find four stolen literary works and the thief of that robbery**. The results were measured through three predefined indicators: (i) level of participation in the experience, (ii) level of motivation and (iii) student's final subject mark. A complete instructional design was developed as a guide for the teacher with the activities to be carried out in class based on the gamification strategy, covering 22 class-hours of Literature distributed in two quarters.

The previous target group were deeply studied (by asking to the teacher involved) in order to know how they were, what they liked and hated to provide them with the most engaged experience to achieve the specific objective. A summary of the profile of the students was as follows: five of the girls were very competitive and they liked passing the subject with a very good mark. As general, girls were more mature than boys. Boys were not so competitive, and they were worried only to pass the subject. So, four groups were made with five students in each mixing girls and boys and distributing competitive girls among the groups.

The dynamics (motivators) selected (according to 16 motivators of Steven Reiss [10] to generate intrinsic motivation among this group of students were:

- **Acceptance**: To cover the need to feel approved by the group and gain recognition from others.

- **Curiosity**: To discover and cover the need to learn new things and to know the following challenges to be made within the experience.

- **Independence**: Ability to decide how to respond to the proposed challenges and to learn autonomously.

- **Collect**: Students are motivated to collect things as they progress through the experience. This can be points, badged or simply information to help decipher a

challenge. This will ensure that the student remains interested in the experience.

- **Social contact**: It is essential that students feel like a group, to achieve, among all, the objective and challenges that are proposed in the experience.

- **Status**: The system will make the students to progress in the experience and give them continuous feedback for it (letters, experience points, badges, etc.), facing the need for recognition by the whole team.

The mechanics (based on the 42 FUNdamentals of John Radoff[1], that is, the activities the students could do in the experience, were the following ones (we have remarked in brackets the related dynamics defined above):

- **Collect Things** (Collect and Status): rewards and other elements that are given throughout the experience that allows advance in the gamified experience.

- **Find treasures** (Collect): people love exploring, it is very interesting that you have hidden literary works that the students find by surprise or after a search.

- **Achieve feeling of completing things** (Independence): give students the constant feeling of ending things through progress bars, to-do lists, achievements and levels.

- **Gain recognition for achievements** (Acceptance, Social Contact, Status): a system of achievements provides a sense of success and the opportunity to be recognized, both by team members and by the teacher.

- **Gathering knowledge** (Learning) **and progressing** (Curiosity, Social Contact and Status): the student learns and progresses with respect to the knowledge he or she is getting by facing the different challenges that are shown.

- **Organize groups of people** (Social Contact and Status): organize groups of people with shared objectives; the students will participate in groups in the topics proposed in class.

- **Listen to a story** (Curiosity, Social Contact): stories appeal to our curiosity about people, places and things. In this case, the story about the theft of some literary works will pose an ideal context for students to begin in the experience and continue in it.

- **Competition** (Status): the students will like that there is some competition between the teams but always under a sense of collaboration to reach the final challenge.

- **Mystery** (Curiosity): achieve a balance between what is revealed and what remains hidden during the experience.

- **Mastering a skill** (Independence): it is about progressing in the subject and students gain knowledge and dominate the content explained and experienced in class.

- **Exploring a world** (Curiosity, Independence): according to an aesthetic and a specific narrative about a theft of several literary works that allows us to understand the environment in which the experience is situated to manage it and achieve the challenge proposed.

The game elements[2], together with the storytelling, that is, the pieces that allow to build the system according to everything previously designed were the following ones:

Onboarding: the student received, a day before starting the experience, this message with a special storytelling to awake his/her curiosity and enters in the experience:

"Nobody can stop it anymore. All the media are talking about it with the following headline: Extra, extra, "The great theft of the National Library". Several literary works have been stolen from their shelves. Works written in different periods of our history: Middle Ages, the Renaissance, the Baroque, a loss of incalculable value. And the most curious of all, each stolen work has been replaced by a card, a card that hides an enigma, a mystery. Everything points to the fact that the cards can be the key to discover the author of the theft and recover the literary works. Different national research groups have been created. You belong to the Sherlock Holmes´s team and you have the mission to recover the stolen works. And depending on your instinct and audacity, maybe you can also discover the thief.

Follow the instructions during the first Literature class next <date> in your classroom. You must get all the cards. Decipher the enigma. Recover the works. Stop the thief. The success of this mission depends on you and your group. We trust on you!"

As the objective is to motivate students to learn Literature, the storytelling and the mission assigned is related to Literature and the contents to be learnt during the course, as well as, the aesthetics associated.

Balancing at the midgame: It was performed by using mainly printed material combined with QR codes as digital approach:

- **Tutorial**: It introduces the experience to students. Each group received a leaflet with the instructions that guided the experience.

- **World**: It is the place where things happen, in this case, the world is the school grounds (mainly the classroom

[1] http://www.get-performance.com/wp-content/uploads/sites/9/2014/11/43FunQuickSheet.pdf

[2] http://www.epicwinblog.net/2013/10/the-35-gamification-mechanics-toolkit.html

and the different places of the school where the literary works were hidden).

- **Mission**: It is the objective to achieve and get the final reward. In this case the goal was to identify the places where the stolen works were hidden and who was the thief.

- **Levels**: The instructional material was structured in levels, where each level was related to the different literature eras (Middle Ages, Renaissance and Baroque). The Figure 1 provides a detailed summary of the learning content for each level:

The Middle Age Level 1	1. The Middle Age: Historic Context and Literature characteristics 2. "Mester de Juglaría": Characteristics and Authors 3. "Mester de Clerecía": Characteristics and Authors 4. Literacy Work: **"Cantar del Mío Cid"** (hidden work)
Renaissance Level 2	1. Pre-Renaissance: Historic Context and Literature characteristics 2. Work: "La Celestina" 3. Renaissance: Historic Context and Literature characteristics 4. Work: **"El Lazarillo de Tormes"** (hidden work)
Baroque Level 3	1. Baroque: Historic Context and Literature characteristics); three trends: lyric, prose, theatre 2. Baroque Prose: Characteristics and Author 3. Work: **"El Quijote"** (hidden work) 4. Baroque Theatre: Characteristics and Author 5. Work: "Fuenteovejuna"

Figure 1: Literature contents and levels

- **Progress Bar**: It represents the progress in the experience for each group. It was visible for all the students during the class by using the following schema (Figure 2):
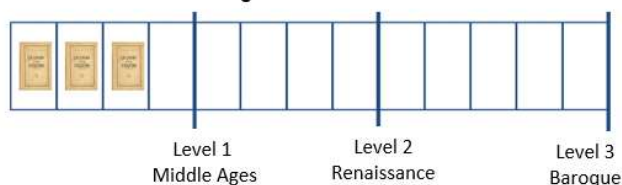

Figure 2: Progress Bar

- **Points**: The students got points (as collectible printed cards) with the activities done in class based on the contents to learn in Literature. The contents and activities to be done in class were gamified too, applying different formats: three newspapers were created (one per era) with articles describing the historic context of each period, puzzles and encrypted messages to form the plot of a literary work, word searches, live performances (minstrel chants), etc. **A detailed and complete instructional document** were developed with the activities to be done each day of the experience to be used by the teacher linked with the whole gamified system.

The points could be exchanged then for different things: 0,1 points for the final mark of the subject (2 points as maximum) of themselves or other group, scheme/summary of the era, a clue to solve the enigma

of the hidden works and the thief. A detailed economy of points was developed to manage the total points earned by students to guarantee the flow in the experience.

- **Fixed Rewards:** The students could get some rewards in form of learning cards after finishing a literary era (and level) (Figure 1). Those cards included a QR codes (Figure 3), providing clues to find the hidden works at each level. With the whole cards and at the end of the experience, the name of the thief could be formed with the letters of all the cards. Each time a group of students managed to pass an era and locate the stolen work, they got extra points and could unblock the next era.

Figure 3: Cards with QR codes

- **Total Rankings:** It represents the global position of each group in the class. Every day, there will be shown a ranking with the total number of points achieved by each team.

- **Easter Eggs**: As an unexpected surprise, each student received the cards of each Literature era with their name, in a box.

- **Free Lunch**: This element allows to get rewards for free thanks to the efforts of others. In this case, points could be given to other groups to get 0,1 points for the final mark, fostering collaboration.

- **Lifejacket**: As help in difficult moments, a set of clues could be exchanged with points to solve the enigma of the hidden works and the thief.

- **Guilds**: The students were organized in groups. A total of four groups were created, each one identified by a famous detective: Sherlock Holmes, Hercules Poirot, Miss Marple and Inspector Clouseau (Figure 4).

Figure 4: Students' Groups

Endgame: The final storytelling was developed when the hidden literary works were found, and the name of the thief discovered:

"And it was the "Trotaconventos", a character created in the literature of the Middle Ages who announced, at the end of the course, that she was the one who stole the literary works with her sole desire to protect them from the bonfire at the hands of the Inquisition. And it was the magic of alchemy that made the rest, moving these works to this school at the hands of some groups of students in order to know the history of the literature of all periods in which these works were written to understand the literary wealth that was going to be delivered to them."

The measured results, according to the indicators established at the beginning of the project were the following:

- **Level of participation** of the groups in the experience and the students of each group: all the students initiated and ended the experience without missing any class. Although the groups worked properly along the experience, the pace of the work and the participation of three students of two groups were down in the middle of it, so it was necessary to develop a "group conduct code" where every individual promised to the group and to the teacher to work at the level and pace of the group in order to get the individual final mark in the subject (two points as maximum, as mentioned before).

- **Level of motivation of students**: A predefined questionnaire was distributed before and after the experience with several questions in a scale of 1 to 5 regarding Spanish Literature and their motivation on the subject: Q1: Do you like Spanish Literature?; Q2: The approach used by the teacher to teach Spanish Literature motivates you?; Q3: Are the material used to teach Spanish Literature appropriate?; Q4: Is it difficult for you to study and understand Spanish Literature?; Q5: Is it difficult for you to pass the exam?. Before the

experience, the media of the answers was 1,5 and after the gamified experience, **the media of the answers was 5,0**.

- **Student's final subject mark**: All the students passed the exam with better marks compared with other subjects and other previous learning methods. As reference, last course, the media of the subject´s mark of a group of 20 students were 6 with 30% of failing grades. This course, the **media was 7,91 with 0% of failing grades**.

- **Level of motivation of the teacher**: the teacher was excited throughout the experience to see her students motivated, to see the results in their final marks and to verify that this learning approach was giving very good results to replicate in other courses.

CONCLUSION

An experience based on gamification that aims to motivate students in the learning process is an alternative to other methods currently used at schools. Intrinsic motivation is the core of this kind of methods and the creative part is essential to develop the best experience that invites to participate and ensures the permanence in it. The contribution of this work to the educational system is not only the explanation of strategy followed to create the experience, but also the experience itself and the instructional design that supports the effective learning (among students) and teaching (among teachers) of the subject. As summary, the experience resulted very motivated, not only to students but also to the Literature teacher. Students were active, engaged, involved in the subject during the whole course (73% more than before). Even, this group of students, asked for the same type of experience in Spanish Literature in the next year high school (fourth-year). The final marks of the students in the subject were 20% better than the same subject the year before.

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