

# TREBALL FINAL DE CARRERA

**TÍTOL DEL TFC:** Gamification platforms applied to education environments

**TITULACIÓ:** Enginyeria Tècnica de Telecomunicació, esp. Telemàtica

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**DATA:** 29 de setembre del 2015

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## **Resum**

La gamificació, o l'ús de mecàniques de joc en entorns no lúdics, s'ha mostrat com una tècnica especialment interessant per potenciar la motivació, l'esforç i d'altres valors positius comuns en tots els jocs. Si bé la gamificació ja està essent aplicada des de fa algun temps en àrees tan diverses com el màrqueting, els recursos humans o fins i tot la fidelització de clients, en l'àmbit docent s'està començant a instal·lar.

L'objectiu d'aquest TFC és, per una banda, definir el concepte de gamificació, presentant un resum de les tècniques i mecàniques de joc que es poden fer servir per tenir un experiència òptima. Com a part d'aquest anàlisis també s'han recollit una sèrie d'arguments, a favor i en contra, de gamificar entorns educatius. Com a resultat s'identifica la necessitat de fer servir una plataforma digital.

Aquest resultat porta a la segona part d'aquest projecte, on es fa un estudi per identificar quines són les plataformes en l'àmbit educatiu que existeixen actualment i agrupar-les en diferents tipus segons les seves característiques.

L'última part d'aquest TFC consisteix en generar un cas d'ús per cadascuna de les plataformes seleccionades cada grup, identificant i definint tot els passos necessaris per tal de que l'activitat de gamificació sigui tan motivadora i enriquidora com sigui possible tant per els estudiants com pel professorat.

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**Date:** September 29th 2015

## Overview

Gamification, or the use of game elements in non-game contexts, has been identified as a really interesting technique for improving motivation, effort and many others positive values usually appearing in games. While it has already been applied in different areas like marketing, human resources and even in cultivation of customer loyalty in the education field it has just been installed.

The goal of this TFC is to define gamification concept and present the best known gamification techniques and game mechanics elements that could be used to get a motivating gamification experience. Part of this analysis consists in presenting a number of arguments both for and against of using this method in schools. The result of the analysis identifies the need of a gamification platform.

This result leads to the second part of this project, researching which are the current existing platforms in the education field and group them based on their main features. A platform of each group has been chosen to design different gamification experiences.

In the last part of this project a use case for each selected platform has been designed, identifying and defining all the necessary steps to make the gamified activity as motivating and enriching as possible for both: the students and the teachers.

Als meus pares, per ensenyar-me que amb esforç tot és possible.  
Al meu germà, per demostrar-me que realment tot és possible  
Al Javi, per creure en mi.  
Als meus amics, per fer més fàcils els moment difícils.  
Per suposat, al meu tutor per tenir una paciència infinita.

***“Live as if you were to die tomorrow. Learn as if you were to live forever”***  
***Mahatma Gandhi.***

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## CHAPTER 1. INTRODUCTION

### 1.1. Motivation and background

According to a report on educational games (see [1]) students recall just 10% of what they read and 20% of what they hear. If there are visuals accompanying an oral presentation, the number rises to 30%, and if they observe someone carrying out an action while explaining it, 50%. But students remember 90% if they do the job themselves, even if only as a simulation.

There is not an official and unique definition of gamification, but all the definitions consider it as a process that uses game theory and game mechanics in non-game contexts with the goal of creating a system much more engaging and addictive.

Gamified education is not about transforming classes into games, it is about increasing students' motivation and therefore they can achieve better academic results.

### 1.2. Project scope

As per the context described in the previous section, this project purpose is to:

- Define gamification and identify its game techniques and game mechanics to understand how it should work to make the experience successful.
- Identify the pros and cons of a gamified education.
- Why is important the use of a digital platform.
- Identify, analyze and group different gamification platforms related with educational environment, comparing functionalities that could be useful for teachers, students and even parents.
- After the analysis is done, select one platform of each group and design a use case with each one.

### 1.3. Environmental impact

As this project is based in software and its usage, it has a low environmental impact. To measure that impact, energy consumption and maybe other material consumption (like plastic for the devices needed) should be analyzed although it could not be trivial and it is not one of this project's goals.

## **1.4. Report organization**

This report is organized into five chapters. The current chapter is the first chapter, where introduction is made.

Second chapter defines the concept of gamification as well as the pros and cons of gamified education.

Third chapter analyzes different education platforms and grouped based on their features, a platform of each group is chosen to create the use cases. In chapter four and five, a use case is implemented using the platforms chosen in chapter three.

## CHAPTER 2. GAMIFICATION

### 2. Definition

As explained in the previous chapter there is not an official definition of gamification but listed below are some definitions that relevant people and companies in the area of gamification have given:

“Gamification is the process of taking something that already exists – a website, an enterprise application, an online community – and integrating game mechanics into it to motivate participation, engagement, and loyalty” by Bunchball (see [2]).

“Gamification aims to increase user engagement in non-game contexts through the use of game mechanics and thinking” by Badgeville (see [3]).

“The use of game mechanics and experience design to digitally engage and motivate people to achieve their goals” by Gartner (see [4]).

“Gamification is the process of using game thinking and game dynamics to engage audiences and solve problems” by Gabe Zichermann (see [5]).

“Gamification is the craft of deriving all the fun and addicting elements found in games and applying them to real-world or productive activities” by Yu-Kai Chou (see [6]).

Gartner’s definition includes as part of it the digital need. Although, to have a good gamification experience it is not compulsory that players interact with computers, smartphones or other digital devices, in most cases technology is going to be part of the process as this is the era of technology.

To create a good gamification story three clear parts need to be defined:

- Gamification design.
- Game mechanics.
- Game techniques

#### 2.1.1. Design of the gamified activity

It is clear that the mere presence of game elements in the environment are not enough to produce an engaging experience for the learners. In order to be successful, a gamified environment needs to be designed; it is crucial to understand which game elements are most effective for use depending on the environment, as well as how they should be implemented, and how they should tie to the objectives.

Using games example: a successful design makes a player participate in it for the sake of playing and to enjoy the fun aspect, a player can become anxious

and frustrated if the game is not challenging enough or, the contrary, if it is too hard to play. In both cases, the player disengages with the system.

### **2.1.2. Game mechanics elements**

These are the components of a game that generate progress in the game, the mechanisms utilized by game designers to reward an activity.

There are many mechanisms that a game can have to be engaging:

- On-boarding session: starting the game with a couple of easy tasks will help the players to understand the game rules, so they perceive they can play and win.
- Motivation: by offering point, badges or rewards.
- Real-time feedback: positive and negative feedback enables users to learn and improve.
- Goal-setting: setting the goal when designing the gamification experience is vital to succeed.
- Competition: games promote excellence and achievement through it.
- Collaboration: by working together as a cohesive unit to accomplish goals.
- Customizable avatars: it generates a sense of ownership to the user.

### **2.1.3. Game techniques**

Game techniques are the processes utilized by game designers to reward activity among users. Some examples are:

- Badges.
- Points or virtual currencies.
- Sharing on social media networks.
- Leaderboards.
- Virtual gifts.
- Rewards.
- Progress bars.
- Levels.

## 2.2. Gamification on educational environment

In most cases students do not perceive the learning process as an entertaining experience and teachers find themselves facing major issues with students' motivation and engagement.

However, games are able to create an environment in which players accomplish tasks for intangible rewards. Some of these tasks can be difficult or tedious but players continue to voluntarily invest time and mental effort in these tasks in order to achieve longer-term objectives within the game. Somehow, this is the kind of behavior that the education system is looking on their students: although education could be perceived as an unpleasant and boring activity it can have long-term benefits.

There are many different benefits of using gamification in classrooms. Some of them can be:

- Increases engagement: students improve knowledge absorption and retention. If they feel positive about their learning process and know that they are going to be rewarded in some way for their efforts.
- Teacher's influence increases: gamification gives teachers more influence over students' actions.
- Enhances the overall learning experience: if students are having fun and are getting excited about learning, then they are more likely to actually acquire information. Students do not have to deal with the stress that can be associated with learning.
- Can increase students' loyalty: by making the classroom more enjoyable, students' attendance will probably grow up.
- Learning is not limited to the classroom: students are likely to spend more time on the course if it is more enjoyable, engaging, and fun.
- Personalized learning experience: because gamification focuses on each student, playing and learning for themselves.

On the other hand, the arguments used by gamified education detractors can be:

- Cost: to develop an effective and well-designed gamification system can represent a substantial increase in cost over standard book/paper/pencil education. For starters, there is the cost of the equipment, the cost of the software, the Internet connection fees and the additional expense of training teachers. However, the maintenance cost is really low.
- Limited content: since game creation can be complex, teachers would need to work hard to create an assorted content, adapted for each kind of student.

- Repetition can reduce interest: in order to gain sufficient depth of understanding it may be need the students repeat the same scenarios several times, which could become repetitive and disengaging.

### 2.3. Need of a platform

Thinking on implementing a gamification strategy without a gamification platform can be very time-consuming and design limited. Moreover, technology can automate a lot of tedious task.

The gamification platform will be a crucial piece for the success of a gamification activity, as the tracking of achievements of all players and the implementation of rules and goals will be, in most cases, administered through such a platform.

A successful gamification strategy requires continual monitoring and improvement and most gamification platforms provide tools, like reports or dashboards, to help teachers make sure that learners are progressing in the desire way.

Taking advantage of the real-time data, teachers can look for players moving unusually fast or slow through the content, they can look for students earning more points than they thought possible or if learners are getting something wrong and try to find out the reason: maybe the gamification experience is wrongly designed or maybe the material explained is not clear for the students.

From student's point of view, they can continue practicing outside the classroom, depending on the platforms features, as well as receiving instant feedback that help them learn at their own pace.

## CHAPTER 3. GAMIFIED PLATFORMS

### 3.1. Gamified platforms

There is a substantial amount of gamification platforms that can be applied to education environments. Depending on the features and functionalities they can be grouped into:

- Collaboration based platforms: connecting teachers, students and in some cases parents. Teachers use them as a communication platform to encourage students by the use of badges, points and rewards, while students can use the points to customize theirs avatars or winning real-life prizes. No questions, quizzes or tests can be created.
- Customized content platforms: apart from bringing teachers and students together these kind of platforms have educational content of different subjects and it is possible to create tests, questions sets, quizzes and even interactive activities. Teachers can control students' evolution thanks to the generated reports and leaderboards.
- Dedicated subject platforms: these platforms have similar features as the above described platforms but with specific subjects, like mathematics or languages.
- External gamification platforms: can be used through an API (Application Programming Interface) on an external website or application. This gamification software is generally reserved for customized solutions where developers work with companies to create interfaces and mechanics based around the required workflow and criteria.

Nevertheless, new industries are created daily so the previous groups could be different in a short period of time.

In the following sections the first two platforms mentioned are going to be analyzed while dedicated subject and external gamification platforms are not going to be included in the analysis. Dedicated subjects platforms are focus on a very specific content so they have been designed thinking on particular use cases. On the other hand, external gamification platforms require an existing platform to be gamified, which is not the goal of this project.

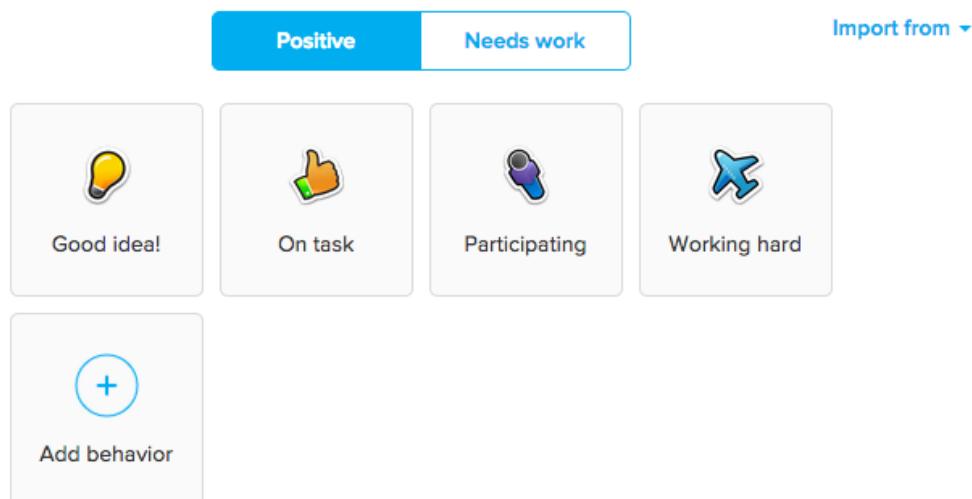
#### 3.1.1. Collaboration based platforms

The platforms analyzed in this section are ClassDojo and ClassBadges. The Table 3.1 compares the most interesting functionalities of both platforms.

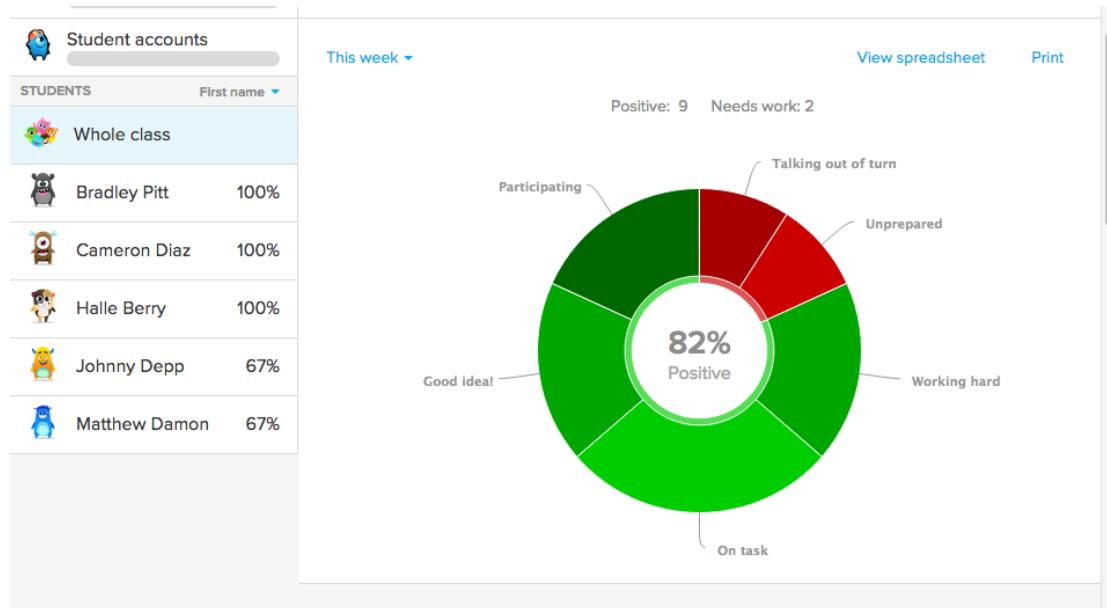
**Table 3.1** ClassDojo and ClassBadges main features

Features	 ClassDojo	 classbadges
Profiles: teacher (T), student (S) or parent (P)	T, S and P	T and S
Platform: web (W), mobile (M)	both	W
Multilingual platform	Yes	No
Teacher's features		
Create/delete a class	Yes	Yes
Add/delete students	Yes	Yes
Add/delete parents	Yes	N/A
Create new badges	Yes	Yes
Assign points to the badges	Yes	No
Download reports	Yes	Yes
Send messages to parents	Yes	N/A
Student's features		
Customizable avatar	Yes	No
Badges	Yes	Yes
Leaderboard	No	No
Share badges in Social Media	No	Yes
Parent's features		
Send messages to teacher	Yes	N/A
Review student's feedback	Yes	N/A

ClassDojo provides teachers with a way to reinforce good behavior in students through gamification. Using a computer or a mobile device, teachers can give real time feedback by using badges for rewarding or penalizing behaviors. Teacher can set, from +/−1 to +/−5, the points assigned to each badge.

**Fig. 3.1** Example of ClassDojo teacher badge panel

The software also makes it easy for teachers to gather behavior data and analytics on individual students as well as groups, which can be shared with parents. Moreover, teachers can manage different classes with the same account.



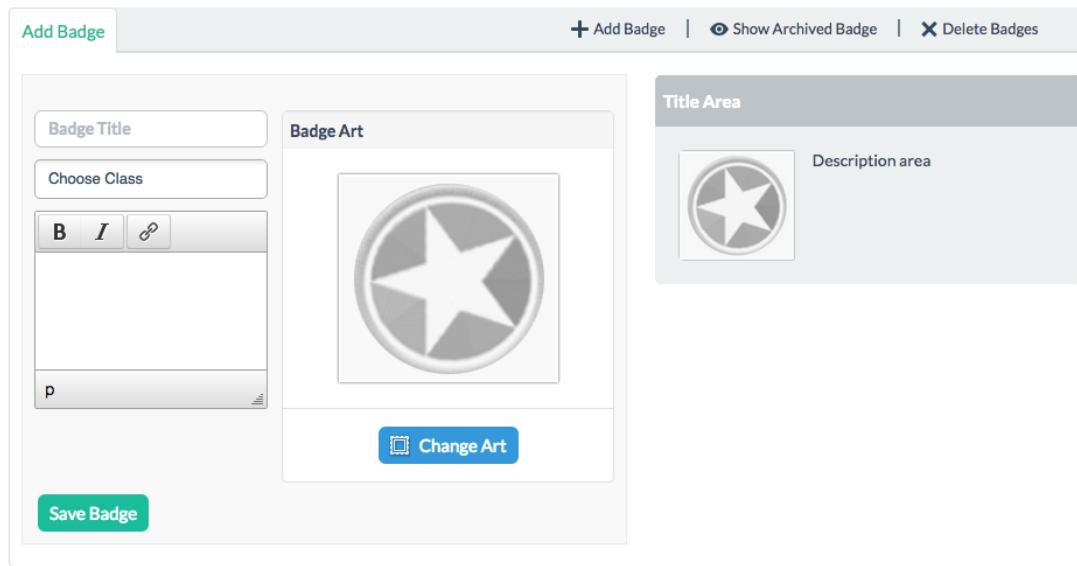
**Fig. 3.2** Example of ClassDojo generated report.

Students receive positive or negative points in the different categories the teacher has created. These are displayed on their profile, along with an avatar that can be customized.



**Fig. 3.3** Example of ClassDojo customizable avatar panel

ClassBadges is a platform strictly for creating and awarding badges. It provides a wide stock of badges but also has the option to upload customized badges.



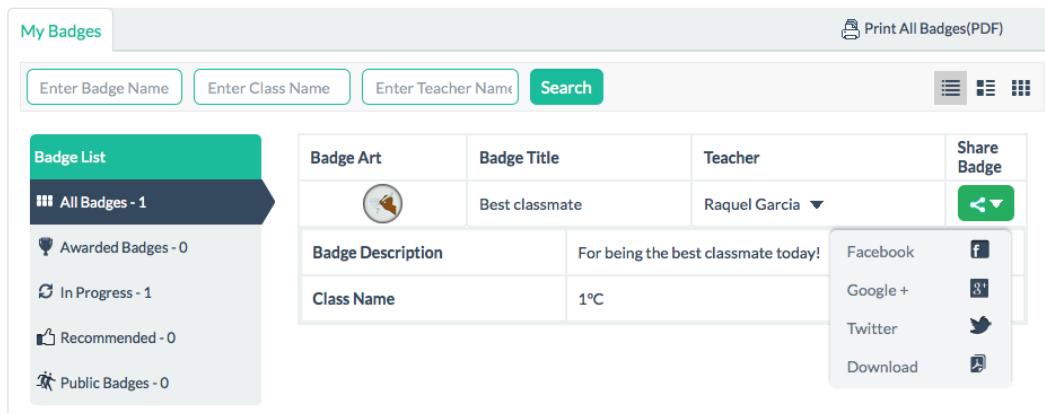
**Fig. 3.4** ClassBadges badge adding panel

The teacher can download classroom reports (not individual) as well as manage different classrooms.

	Class Name	Registration Code	Students	edit	delete
▼ 1ºB		5WH7W9NH	1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
▼ 1ºC	Antonia Jimenez	GRR6KOIC	1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

**Fig. 3.5** ClassBadge teacher dashboard

On students' side, they can view badges received and even download and share them in social networks.



**Fig. 3.6** ClassBadges student badge panel

### 3.1.2. Customized content platforms

The platforms analyzed in this section are Zondle, Kahoot!, and Socrative. The Table 3.2 compares the most interesting functionalities of all platforms.

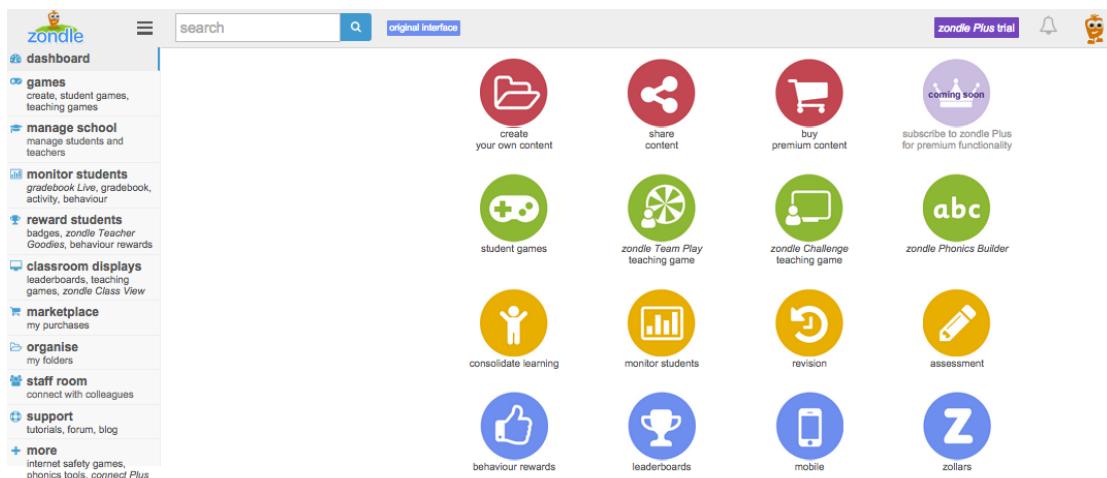
**Table 3.2** Zondle, Kahoot!, and Socrative main features

Features			
Profiles: teacher (T), student (S)	T and S	Unique profile	T and S
Platform: web (W), mobile (M)	W and M (with restrictions)	W and M	W and M
Multilingual platform	No	Yes	Yes
Teacher's features			
Create/delete a class	Yes	No	No
Add/delete students	Yes	No	No
Create new badges	Yes	No	No
Assign points to badges	No	No	No
Reward students	Yes	No	No
Redeem program	Yes	No	No
Punctuation system	Yes	Yes	No
Download reports	Yes	Yes	Yes
Invite co-teachers to the classroom	Yes	No	No
Create questions	Yes	Yes	Yes
Multiple question types	Yes	Yes	Yes
Interactive playing options (teams/individual)	Yes	Yes	Yes
Content available	Yes (paying)	Yes	No

Student's features			
Customizable avatar	Yes	No	No
Badges	Yes	No	No
Leaderboard	Yes	Yes	No
Points	Yes	Yes	No
Share badges in Social Media	No	Yes	No

Zondle is a very complete platform where teachers can create quizzes and set them to the students. It includes more than twenty different types of question (many of which can include audio or images).

Teachers can set the content as summative or formative. By selecting the summative option students can play just one time while using the formative option let students play it unlimited times. This setting is quite interesting because teachers can use the summative option to create exams or to set homework while selecting the formative option enables students to practice outside the classroom. In addition, each time the student plays a round earns *zollars*, Zondle virtual currency.



**Fig. 3.7** Zondle teacher's dashboard

choose a question type

<b>Multiple choice</b>	<b>True / False</b>	<b>Image multiple choice</b>
Where is Paris? France Spain Germany	Paris is in France True False	Which is largest? 

close

Most popular	mobile	desktop	zondle Challenge	zondle Team Play	assessment Plus more information	
Multiple choice	✓	✓	✓	✓	✓	<a href="#">create question</a>
True / False	✓	✓	✓		✓	<a href="#">create question</a>
Text / image multiple choice	✓	✓	✓		✓	<a href="#">create question</a>
Sequencing	✓	✓			✓	<a href="#">create question</a>
Matching pairs	✓	✓			✓	<a href="#">create question</a>
Languages	mobile	desktop	zondle Challenge	zondle Team Play	assessment Plus	
Listen to the word then type the translation		✓			✓	<a href="#">create question</a>
Type the translation		✓			✓	<a href="#">create question</a>
Click the missing word	✓	✓			✓	<a href="#">create question</a>
Type the missing word	✓	✓			✓	<a href="#">create question</a>

**Fig. 3.8** Extract from the available question types

Moreover, the platform has two game approaches designed for use by teachers on projectors (or similar) where students can interact directly using Internet connected devices. One approach has been designed for students to play in teams and the other for students to play individually.



**Fig. 3.9** Zondle team play interactive activity

It has a reward section where teachers can: choose from a stock of badges or create their own ones as well as create and publish the rewards in their

dashboard. In this section, teachers can also control who has redeem each reward.

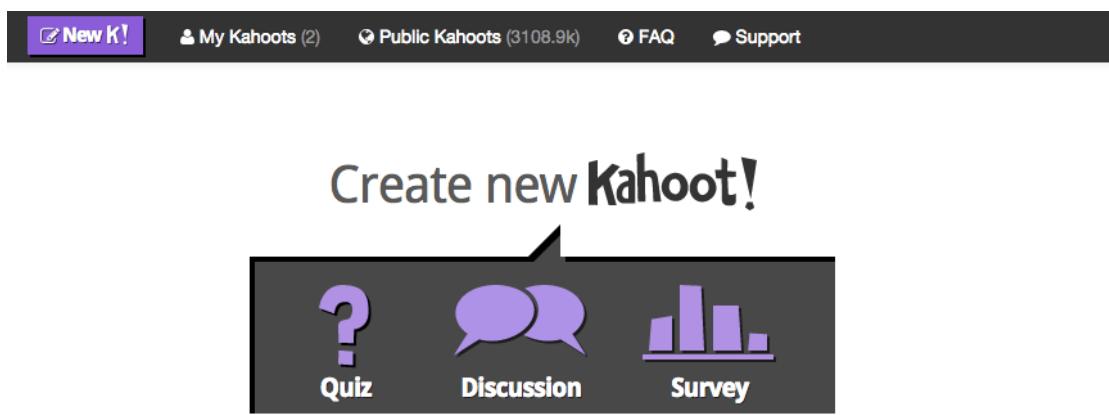
Zondle has also a tool to control platform's activity so it is possible to see when each student has been connected and what (s)he has done. Besides, it has tools to control student's progress giving teacher the opportunity to identify weak learning areas.

In addition, the platform generates a leaderboard with three positions that is automatically shared with all the classroom.

On the other hand, students can choice to play the quizz on a wide range of different short rewarded games. Giving students a choice of game helps to maximize their engagement and gives them more ownership of their own learning. Students can create their own sets of questions, to consolidate their learning or in preparation for their exams.

Kahoot! is a very intuitive platform, where teachers and students can create (or choose from an existing content) quizzes with multiple choice questions.

In order to play, the teacher should launch the quiz and display it in a shared screen and students can connect to it through Kahoot! public page and join the quizz by using a unique pin. The setup is extremely easy.

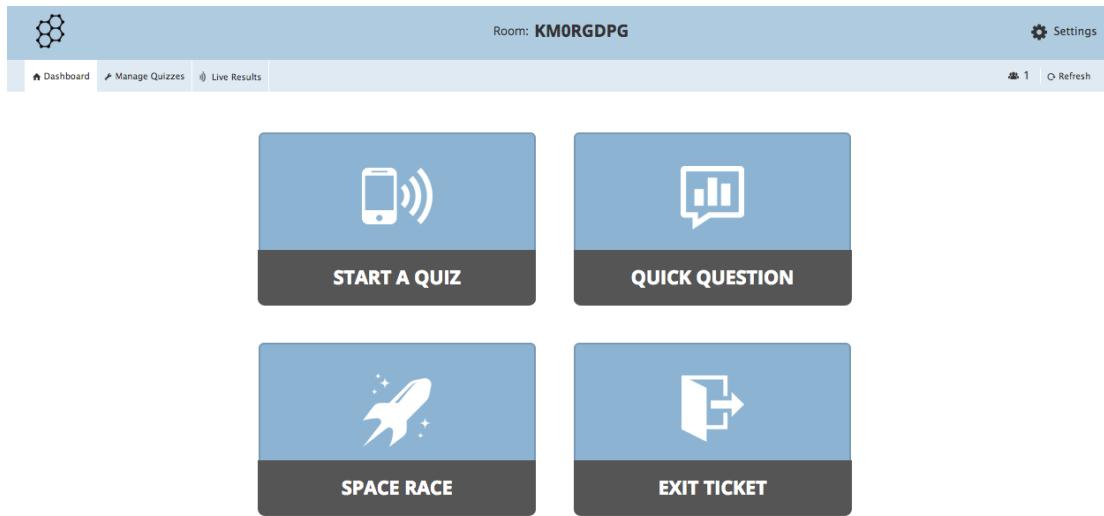


**Fig. 3.10** Kahoot! Dashboard

Once all the students are connected to the quiz, they can choose the answer to the question they are seeing from their mobile devices. After answering, while a message appears on student's screen indicating if the chosen answer is correct or wrong in the whiteboard/projector the teacher can see how many students has selected each option, so all the parts receive instant feedback.

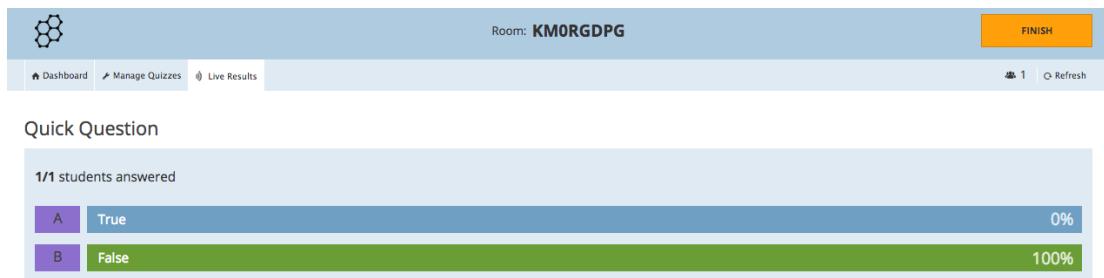
Finally, Socrative platform is easy to use and designed to be used during the classroom. The functionality of this platform is very similar to the Kahoot!

platform: teachers can create quizzes but also a game, called space race, designed to promote a friendly competition between students.



**Fig. 3.11** Socrative teacher dashboard

The platform provides teachers instant feedback on student's responses.



**Fig. 3.12** Socrative live results panel

The platform has three questions types: multiple choice, true/false and short answer. All of them give the teacher the option to add an explanation of the correct answer in case the student does not choose the correct option.

Students only need to visit Socrative website or open the application and join the classroom using the room code the teacher will provide.

### 3.1.3. Analysis conclusions

The main conclusions of the analysis previously performed are:

- In general, the most common profiles are: teacher and student. Both profiles have similar features through the different platforms maybe because of its simplicity. However, ClassDojo has a third profile, for parents, making easier the communication with teachers.
- It is a pretty common game mechanic the use of customizable avatars that can increase student's sense of ownership.
- The collaboration based platforms analyzed use badges as the main game technique. While ClassDojo has the option to assign points to the badges, ClassBadges has a wider stock of badges.
- The customized content platforms analyzed use interactive systems like sharing content in whiteboards or projectors and let the students answer using a mobile device. With this systems students receive instant feedback that is an important part of a great gamification experience.

### 3.1.4. Gamification platform selection

After performing the analysis on the different gamification platforms the idea is to implement a use case per each group of platforms. It has been decided to use ClassDojo as the collaboration based platform and Zondle as the customized content platform.

The reasons for choosing ClassDojo are clear: it allows the teacher to assign point to badges, which give the teacher more options to gamify the activity. Moreover, it has customizable avatars that could be really enjoyable for students.

On the other hand, Zondle besides the interactive games that all the customized content platforms have also gives users, teacher and students, many different tools that can help to make the gamification experience richer, like leaderboard for students and monitor boards for teachers.

## CHAPTER 4. GAMIFICATION EXPERIENCE 1

In this section, as stated in the previous chapter, ClassDojo is going to be used to gamify an educational activity. The content of this section is split into the different steps needed to design a gamified activity.

### 4.1. Context

The activity is going to take place during a summer camp of Grade 4 students from the same school.

The summer camp programme includes many organized activities and workshops taking advantage of camp's location, a natural environment.

As an optional assignment, students will be asked to do an assessment about the local fauna and flora.

Students will have spare time (to be decided by the teachers) and limited time to use the Internet room.

### 4.2. Goals and achievements

The activity expectation is to improve the relationships between students, inside and outside the school environment.

On the other hand, a secondary objective will be to promote students' respect for the environment.

The achievements can be measure if the number of conflicts between students decreases and they start helping each other independently the team they belong to.

Besides the collaboration increase, if classrooms are cleaner and students have a greener attitude the secondary goal has been achieved.

### 4.3. Actions to be motivated

As already explained, through this activity teacher expects to encourage comradeship and cooperation between students, independently of the class they study at.

Indirectly, students could be the intermediaries responsible for bringing a green attitude to their homes, involving family and friends, so they can start being more environmental friendly.

#### **4.4. Gamification design**

During the summer camp many activities are going to take place, some of them are set in groups and some individually.

Teachers could evaluate any behavior, positively or negatively, at any moment even in the student's spare time.

The students that hand in the optional assessment are going to be rewarded for the extra effort that they have done.

#### **4.5. Game techniques**

In this case the game techniques used are points, badges, rewards and leaderboards.

After each activity the team or the student, depending on the kind of activity, receives a positive or negative badge depending on the results. Each badge has an amount of points associated therefore, positive badges increase students score as well as negative badges decrease it. It is important making the scoring easy, avoiding complicated algorithms or formulas.

On the other hand, teachers can use badges to reward aspects like punctuality, having the room tidied, recycling...

At the end of the day, a leaderboard is created with the scores of each team adding the points that each member has earned individually.

Rewards are important, so students can see short-term benefits. In this case, points can be exchange by rewards. The reward list, published in a visible place, is reset daily to ensure all the students have the chance to enjoy the same rewards.

With this system, points exchanged by rewards, all the students are rewarded so it is a healthy competition.

Some possible rewards could be:

- More Internet time.
- Priority to choose the place in the school bus.
- Going to sleep later.

#### **4.6. Implementation**

The implementation of this activity is quite easy thanks to ClassDojo, with this application teachers can create different badges, assigning them a positive or negative score.

In addition, ClassDojo has a feature that allows the communication between the teacher and parents, that could be very interesting in this kind of activity.

From students' perspective, they can enjoy customizing their own avatar as well as they can check their score and the badges received.

Although ClassDojo does not have a leaderboard it could be easy and funny for the students to design one, even this could be one of the first activities they can start working on. Each group of students can be the responsible to updating it at the end of the day.

## CHAPTER 5. GAMIFICATION EXPERIENCE 2

In this section, as stated in chapter 3, Zondle is going to be used to gamify a subject. As in the previous chapter, the content of this section is split into the different steps needed to have an optimal gamification design.

### 5.1. Context

The activity is going to take place during a subject of a high school course. As in an standard course teachers are going to give assignments to students as well as students are going to take exams.

### 5.2. Goals and achievements

The activity goal is to encourage students' motivation, create a healthy and open competition between students.

The achievements would be measured by student's final grade. In addition, an indicator of achievement would be a change on students' behavior while the course is moving forward: participation increases or attendance improves.

### 5.3. Actions to be motivated

The activity goal is to increase students' attendance, punctuality, participation and creativity. Thanks to a gamification platform students' participation can be increase outside the classroom too.

### 5.4. Gamification design

During the lesson the teacher is going to set out some games (to be played in teams or individually) to check if the content is clear. If the ratio of correct answers is not satisfactory, the teacher can come back and explain the content again. Students who have a greater ratio of correct responses can be rewarded.

The teacher can set some quizzes that can be done by students at home to keep on practicing.

In order to evaluate punctuality and attendance the teacher can write down who has arrived on time and who has assisted to the classroom.

## 5.5. Game techniques

In this case the game techniques used are points, badges, rewards and leadboards.

The badges earned by the students will increase their final score while the points can be exchanged by rewards, so in every moment students perceive their effort is being compensated.

Some of the badges can be:

- “Just in time”: for rewarding students who have delivered the assessments on time. It has a multiplication factor. E.g: if the multiplication factor is 1.2 in case student's score in the assessment is a 7, after earning this badge it would be an 8.4.
- “You're the best”: for rewarding the student with the highest score in a test. It has a multiplication factor.
- “Happiest idea”: for rewarding the most original assessments. It has a multiplication factor.
- “Check-in”: for rewarding students' attendance. In this case, students can increase up to one point the final score.

On the other hand, students can earn points by practicing inside and outside the classroom the games set by the teacher.

As stated, points will be redeemed by rewards, once a reward is published all the students who have the proper amount of points can redeem them by the desired reward.

Some possible rewards could be:

- Leaving the classroom five minutes early.
- Delivering an assessment one day later.
- A joker that can be used for leaving empty an answer in an exam.
- Eating chewing gum in classroom.
- Sitting wherever the student wants.

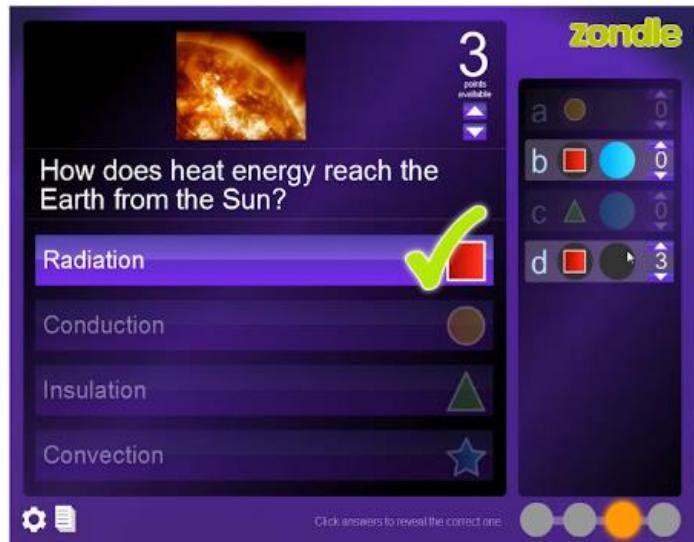
In every moment students can have a view of their status thanks to the leaderboard, where they can check their own points as well as their classmates' points.

## 5.6. Implementation

The implementation of this activity with Zondle is quite easy as it has all the necessary tools needed for this use case.

The teacher can play different games during the classroom to ensure the students have understood class topic.

One game approach, called *zondle Team Play*, is designed to be played in groups and the teacher can even include teaching materials. Teams will give their responses so the teacher can mark them. After responding students can decide if they want to game their score, if they choose to game their score, their score might be doubled or zeroed.



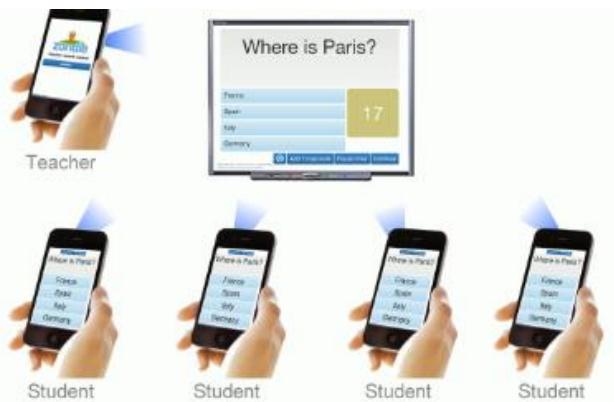
**Fig. 5.1:** zondle Team Play revealing the right answer

After responding students can decide if they want to game their score, if they choose to game it, their score might be doubled or zeroed.



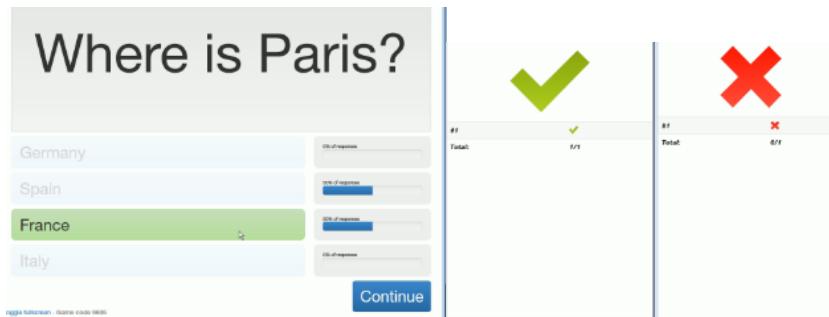
**Fig. 5.2:** zondle Team Play: wheel of chance

The second game approach, called *zondle Challenge*, is designed for students to play individually, using Internet connected devices they will connect to the game.



**Fig. 5.3:** *zondle Challenge* diagram setup

Once all the students have joined the game, using a game code, teacher can start the session. They will see in their devices the question and the possible answers, once all students have answered, the teacher will show up the correct answer.



**Fig. 5.4:** *zondle Challenge* simulation of two students' devices view

As per the design of the platform, this kind of games do not increase students' zollar budget however if the teacher wants to reward the student with the highest score, she/he can decide between creating a badge (that would impact student's final score) or manually modifying the students' zollar account (that the student can redeem).

Moreover, the teacher can create quizzes and set them to students so they can practice out of the classroom, through this activity students' earn zollars and, as the tool allows teachers to monitor the classroom activity, the teacher can evaluate student's participation.

gradebook Live (beta)	gradebook	gradebook snapshots	activity	behaviour rewards	zondle Challenge
<b>1B Maths</b>					
	◀ Saturday 12/09/2015	Sunday 13/09/2015	Monday 14/09/2015	Tuesday 15/09/2015	Wednesday 16/09/2015
gamifiedstudent1					Thursday 17/09/2015
studentgamified2				4	Friday 18/09/2015 ▶

**Fig. 5.5:** Zondle activity panel

On the other hand, with Zondle teacher can publish and manage the rewards. Once an student redeems a reward, the teacher will be notified.

my zondle Teacher Goodies	manage redeemed zondle Teacher Goodies
<b>Delivering an assessment one day later</b> Redeem this teacher goodie and I'll let you deliver the assessment one day later dollar price: 500	Available to students in the following classes - 1B Maths - 4A History <a href="#">edit</a> <a href="#">delete</a>
<b>Leaving the classroom five minutes early</b> Redeem this teacher goodie and I'll let you leave classroom five minutes early dollar price: 100	Available to students in the following classes - 1B Maths <a href="#">edit</a> <a href="#">delete</a>

**Fig. 5.6:** Zondle reward panel

Finally, as has been explained, leaderboards are an important game mechanic element because they raise motivation and encourage competition. Thanks to Zondle's leaderboard students as well as teachers can check positions and dollars amount.

leaderboards	teaching games	zondle Class View	student stream
class			
Class 4A	<input type="checkbox"/> auto refresh every 30 seconds		
Position	Avatar	Name	dollars behaviour reward
1st		Charlie Matlin (charm257)	12100
2nd		Jane Richardson (monkey3)	700
3rd		James Rollin (jamer676)	400
4th		James Hanks (jameh156)	400
5th		Zoe Jenks (zoej158)	300
6th		g5htytr	200
7th		Harry Roden (monkey2)	100
8th		Harry Banks (harrb398)	100
9th		Molly Aitkin (molla724)	0
10th		James Hanks (monkey1)	0

**Fig. 5.7:** Zondle leaderboard simulation

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