Game-based Learning vs Gamification: A Hands-On

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Abstract

An example of gamification is a contest where students get points for solving the usual exercises of the subject matter. An example of game-based learning is an escape room where students get involved in studying and solving subject matter problems to get the required hints to continue the game. In this sense, game-based learning is an instance of problem-based learning.

We propose a hand-on sesion where participants will get engaged into: first, a gamification activity; and later a game-based learning (GBL) activity. They will be encouraged to notice the differences and make a distinction between them. Afterwards, participants will be required to design a simple escape room situation involving problems for their own courses.

Keywords: Active Learning; Engineering Education; Conference Information; Project Approaches.

1.   Introduction

Gamification has gained popularity in the last years, it is used in primary and secondary schools, as well as in companies and also at the university (Call, 2021). Along with this growth in popularity the number of available computer tools that facilitate the implementation of quizzes, competitions, simulations, WebQuests etc. has also grown.

Play engages students and enhances learning, however not all sorts of games are equally fruitful. As in (Dave Eng, 2019), we make the distinction between gamification and Game-based learning (GBL). An example of gamification is a contest where students get points for solving the usual exercises of the subject matter. An example of game-based learning is an escape room where students get involved in studying and solving subject matter problems to get the required hints to continue the game. In this sense, game-based learning is an instance of problem-based learning as it complies with the characteristics of PBL (Graaff, E. 2003).

The work presented here has been designed as a part of a Teaching Innovation Project to introduce Game Based Learning (GBL) into first year subjects with the aim of fostering (cooperative) learning, engaging students, and providing a positive social dimension . It is an interdisciplinary project that involves 3 different schools of Engineering education in our University where GBL has been introduced in 4 different subjects.

Our goal is to design games from which the students cannot escape without learning (Bofill 2007). As McGonigal proposes (McGonigal 2011), an escape room seeks to have an epic mission, a clear goal, immediate feedback, another chance to prove it and a positive social dimension.

From a general point of view, we can say that learning takes place in five stages [Bofill, 2007]. Namely: motivation, information retrieval, understanding, application (or practice) and feed-back. As we will see, GBL, reinforces the autonomous realization of each of these stages. Figure 1 shows a screenshot of the Escape Room that will be used in the workshop: A bridge over the river Splash
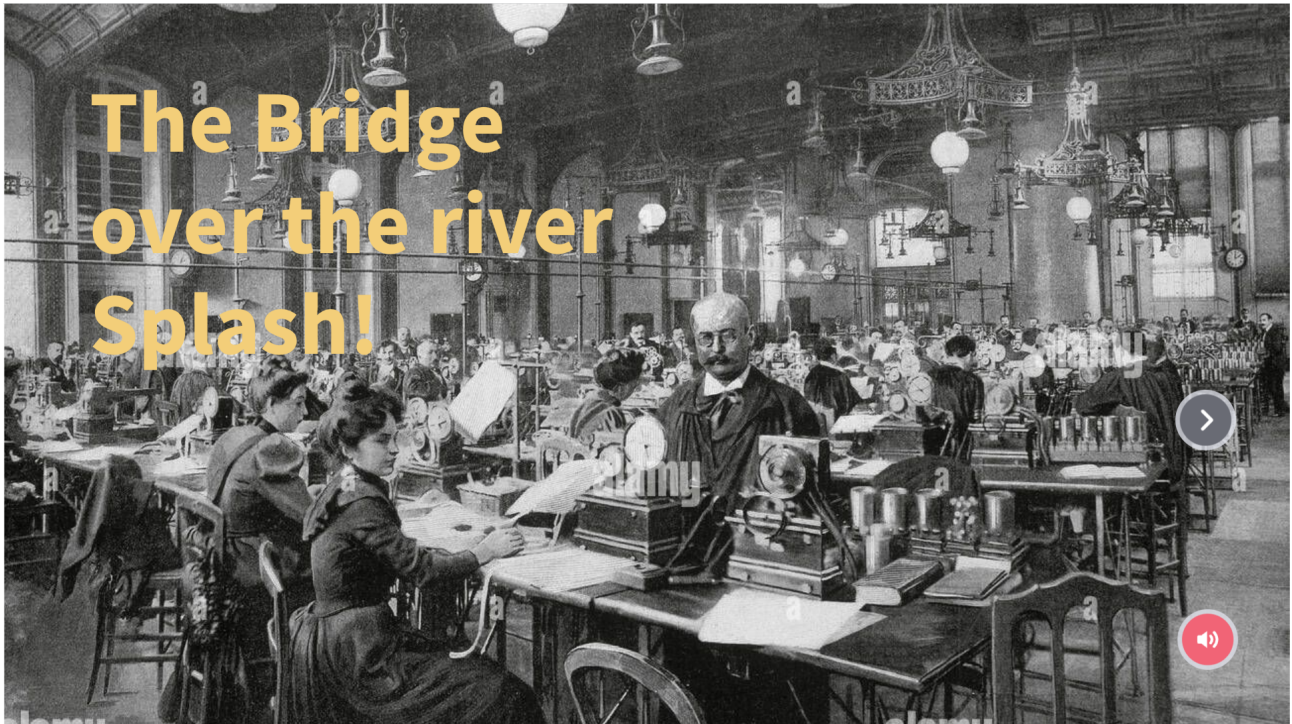
Figure 1. Screenshot of our escape room: a bridge over the river splash.

2. Activities

In the hands-on session we will ask the participants to work in teams and we will need a computer or laptop to be available for each team.

- First participants will engage in a gamification activity: they will be required to solve a simple questionnaire, and we will monitor their progress using Socrative tool (socrative.com).
- Second we will ask them to participate in a game-based learning activity, an escape room implemented with genially https://genial.ly/es/ where they will be required to solve simple computer programming exercises to obtain the keywords to progress on the game and exit the escape room. Notice that we do not expect the participants to know computer programming so they will be allowed to use other means (aka. cheating) like google to provide the answers to the riddles. The students however are required to write the programs to solve the questions.
- Third, we will ask participants to reflect on both experiences and notice the difference between gamification (the first) and GBL (the second).
- Fourth, participants will be invited to design a simple escape room situation involving problems for their own courses.
- Finally we will end the session with an open debate, where we may discuss topics such as: evaluation, comparing game-based learning versus gamification strategies, strategies and tools for applying such gaming techniques in the classroom and online. The debate will be aimed to formulate conclusions and get feedback and ideas to improve our game-based activities.

Inspirational questions to open debate:

- Which sort of gaming experience provided higher motivation?
- What differences can you see between gamification and GBL?
- Think of ways to introduce GBL into your subject
- Regarding the quality or level of understanding, which experience do you think provides a deeper level?

3. Expected results

We expect a fruitful discussion and each participant should go home with some ideas on how to introduce GBL into his subjects. We also aim to have fun and spread the joy of learning through play. We will evaluate the activity with a survey (using the same Socrative tool).

4. Instructions for Participants

Participants will be required to bring a laptop and a set of earphones, or otherwise it should be made available a computer per team to be able to carry on the session.

The activity is open to everybody who has an interest. They should come with an open mind and willing to have fun.

Acknowledgement

5. References

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