Online Escape Room Instead of Geology Excursion for University Students

Irena Chlebounová

Charles University, Czech Republic

Abstract

There was no possibility to organise excursion during last two years because of Covid-19 pandemic situation. But what to do with the university subject which aims to teach future teachers how to plan excursions? This research focuses on using escape room as a simulation of excursion focusing on geology and history subject. As a suitable place was chosen Vyšehrad (in Prague) that had great importance for the early Czech history. The game was conducted as an innovative educational tool for group collaboration. Students were divided into groups of 4 to 5 people, Players answered reflective questions after finishing the game. Their feedback showed students' satisfaction with the activity and increasing of motivation for subject. Some groups faced problems connected with strategy and poor knowledge of the topic. Average time for the online tour was 60 minutes. Pilot study was done with 3 classes of high school students. Some of them see the game as too much complicated but most of them enjoyed it. Literature and these experiences see this type of activity as a new challenge for remote classroom and as a tool for developing students problem-solving skills and critical thinking. The limitation is the time needed for preparing such complex activity. Students claimed that they wouldlike to try escape room for strengthening the knowledge after real excursion.

Keywords: *Online Escape Room, Gamifying in Education, Motivational Tool*

1.   Introduction

A whole world faced in last two years Covid-19 pandemic situation. [1] Education in many countries was transferred only through digital technologies. [2] Teachers were forced to use new methods to keep in touch with their students. [3] One way how to make their subject interesting and learning of students effective was implementing educational games. [4] This study aims to describe the use of an online educational escape room that was prepared in the Charles University in Prague for future biology teachers in the subject Excursion in Biology Education. [5]

2.   Methodology

Being able to prepare an interesting, interactive and interdisciplinary excursion becomes a necessity for future teachers. This subject takes place in nature and gives inspiration on how to work with pupils outside. But last two years most of the time spent university students by their computer and the subject was done through Google Meet and Classroom platform. During one lesson students in groups of four played prepared online escape room "Journey to Vyšehrad" [5] instead of a real excursion to Vyšehrad, which is an important place from the historical and also geological point of view. Afterwards, there was a discussion about the game, students filled a questionnaire and shared their feelings. In the next lesson, they were again divided into groups and prepared their virtual escape rooms with the help of their teacher. During the third session, students presented their prepared games, shared them with others and discussed their use in secondary or high school. They also tried to improve their games according to the feedback of others.

2.1   Sample Description

The virtual escape room "Journey to Vyšehrad" played simultaneously 16 university students divided into groups of four through Breakout rooms in Google Meet platform. The game was also played by 92 high school students (3 classes). There were groups of 3 - 5 in two classes of 18 years old. Students of the third class (16 years old) played the game altogether. The reason was to improve the game according to the feedback of players and to motivate students tired of distance learning.

2.2   Escape Room Description

The Escape room "Journey to Vyšehrad" was designed for two 45 minute lessons joining together. There are two main topics in the questions – history and geology (rock types). Geology is taught in theCzech Republic during the last year of secondary school.

The Escape room consists of 12 websites. On every site is another photograph of one place from the real Vyšehrad mostly with a young person (guide) who tells something through a comics bubble. Every site was first done as a Google presentation. In every presentation are some pictures with Internet link on the Flippity net: Scavenger Hunt application. In this application are prepared some questions (mostly 3) with hints for answers. They are laid in sequential order so the player has to answer the firstquestion before he or she sees the next. The player gets the code that leads to the next website after he or she gives the right answers on the sequence of all questions connected with the one picture. The time is limited just by the end of the lesson. Everybody can take as many hints as he needs (there is one for every question) because the aim is for everybody to go from the beginning to the end of the journey. There are made 3 possible way to go around Vyšehrad with two different ends. It gives the adventure feeling to the players. One way is shortest, without any Google forms questionnaire about Vyšehrad cemetery. The two others are finished by this petrology questionnaire full of the photograph from the cemetery. It makes the game a little bit complicated but gives the teacher a way to make it easier or more difficult according to students abilities. It shows also a possibility of real excursion to choose the way for the walk around the real Vyšehrad.

2.3   Data collection

Students got an online questionnaire in the Google forms application with the following questions:
1.   How many players were in your group?
2.   How much time did your group spend on the game?
3.   Did you answer questions from the Vyšehrad cemetery section?
4.   How difficult were the tasks for you?
5.   How clear was the organisation site of the game?
6.   Did you find any misleading information? Which?
7.   How often did you use hint?
8.   How often did you search for information on the internet?
9.   Did you like this game?
10.   Do you have any improvements to this game or tips for the creating of a new escape room?Which?
11.   Was it easy for you to understand the rules of the game?
12.   Did everything work as it should? What did not work?
13.   Were you satisfied with the organisation of the game? If not, what are your suggestions forimprovement?
14.   Did you play escape room before?
15.   Do you consider the escape game to be a useful tool for repeating information from theexcursion or as a preparation for a real excursion?

3.   Results and Discussion

The escape room "Journey to Vyšehrad" [5] took from 30 to 90 minutes. The duration of the game depended mostly on the abilities of students in dividing roles between members of one group and on the good communication in this group. There were groups of 3 that needed 30 minutes and some groups of 6 which spent with the game 90 minutes. The easiest way was to do it together with the whole class because the teacher could to manage the time. In this condition, the game took 40 minutes. Some high school students played in another virtual escape room one month before this one.They needed less time to go from one website to another because of their previous experience with the same type of game. Questions were evaluated by most of the students as appropriate or some as too difficult. The reason could be that there was a quite long time from the repetition of geology topic and students had poor knowledge of geology before the game started. Most students enjoyed participating in the game and they liked the atmosphere according to the literature [1] - [9]. They described the game as an engaging, effective learning activity, which is suitable for the simulation ofan excursion. It can be transferred into real excursion as its preparation or repetition of knowledge from it. Many students preferred this activity over regular classroom experiences as seen in [6]. As it was seen during the escape room, the game gives students of all ages the "flow" experience like is described in [7] and stimulates curiosity. The team size of 4 was the most

suitable for cooperative learning as it was advised in literature [7]. Students, who had problems getting from one task to another for a long time or repeatedly, were critical about the organisation of the game as was written in [6 and 8]. As was seen in the geology questionnaire, the game strengthened the understanding of geology among students like in [9].

There are some Google presentations with hidden puzzles in 4 pictures on each photograph. Figure 1 is the starting point of the game. Internet link to the Flippity net: Scavenger hunt is hidden behind the map, the rock, the pavement and final code to the next presentation (Fig. 2) is behind the gate.

Fig. 1 The entrance gate of the game leading to puzzles on Flippity net

Fig. 2 Rotunda of Saint Martin with 4 pictures

Figure 3 leads to 4 possible directions of the escape room, every sculpture shows another direction. One of them goes to Fig. 4 and then, after the opening of the Scavenger hunt, back to Fig. 3. The other sculptures have their way around Vyšehrad. Some of them are shorter than others. After few stops with tasks, they come to Fig.5, the second crossroad of the game.

Fig. 3 Acropolis – the crossroad of the game

Fig. 4 Gorlice – Dead end of the game

Everybody who chooses the picture on the left in Fig. 5 finds the end of the escape room in Fig. 7. Students, who choose the picture on the right in Fig. 5, have to fill geology questionnaire in Fig. 6. It is prepared in Google Formular.

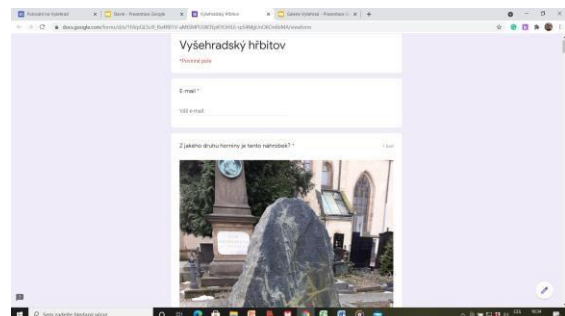Fig. 5 Slavín – the second crossroad of the game

Fig. 6 Cemetery – the geology questionnaire

Fig. 7 Farewell on the stairs (the end of game)   Fig. 8 Farewell by the gate – the second end

4.   Conclusion

Students enjoyed the escape room. Their comments were used for the improvement of the game (this is the new version of it). Most of them see the escape room as a useful tool for repeating information from the excursion or as a preparation for a real excursion. It matches selected articles [1] – [9]. The escape rooms are favourite educational methods.

5.   References

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