4 MISSION BERLIN – a mobile gamified exploration of a new educational landscape

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Abstract

Although the use of games and game elements other than pure entertainment has been studied in several academic fields, studies on completely gamified courses for foreign language learning in secondary schools are still scarce. This exploratory research paper contributes to a better understanding of the affordances of mobile gamification in Foreign Language (FL)/L2 education, specifically in the context of a Dutch secondary school. A technology-assisted mobile gamified language course for A1 German as an FL (GFL), called MISSION BERLIN, was developed, implemented, and evaluated. The students assumed the role of secret agents on a six-week mission to Germany's capital, using the official Moodle app on their own devices. A total number of 45,003 student's interactions (clicks) with the Moodle software were recorded and analysed, including the total number of individual interactions and the times when the clicks were made. In addition, the way how students collected the coins was analysed, making it possible to identify students' playing patterns and to explore different student actions.

Keywords: foreign language learning, gamification, Moodle, MALL.

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1. Introduction

For the current generation of students, the use of digital and mobile technologies is considered a part of their daily lives. These 'digital natives' (Prensky, 2001) are used to a world in which action is triggered by rewards, fun, and competition (Zarzycka-Piskorz, 2016). Such elements are called *game elements* and they can be adapted for the needs arising during language classes (Danowska-Florczyk & Mostowski, 2014). In a well-balanced system, these game elements influence the players' actions, affect their considerations, and may change their behaviour over time. This fact is the basis of this study. The "process of making activities in non-game contexts more game-like by using game design elements" (Sailer, Hense, Mayr, & Mandl, 2017, p. 372) is a process called *gamification*, which draws from Ryan and Deci's (2000) *self-determination theory* and Csikszentmihályi's (1975) *theory of flow* .

In an earlier paper on this topic (Pardoel, Papadima-Sophocleous, & Athanasiou, 2018), we already explored the merits of the Moodle online platform for gamification and compared it to the Moodle app. This paper approaches the A1 GFL course from a user's perspective, in order to shed light on the players' interaction with the Moodle software. For this reason, an exploratory research was conducted, aiming to find out which playing patterns appear in a technology-assisted mobile gamified language programme at CEFR-A1 level. This course, called MISSION BERLIN, was then developed and implemented in Moodle.

2. Method

2.1. The setting

The study took place in a Dutch public pre-vocational school, a type of school with a relatively large number of students with special educational needs. The students (n=39, age=13/14) enrolled in the A1 GFL gamified course as an "intact

class" (Mackey & Gass, 2005, p. 142). The students were familiar with playing (digital, board, or card) games. The course took six weeks; all students used their personal mobile devices and the school's Wifi connection.

2.2.   Research design and data collection

The student's interactions with the software, known as 'clicks', were automatically recorded in the Moodle logs. Examples of such clicks include the submission of work, completing group challenges, viewing documents, answering questions, or levelling up.

2.3.   The design of MISSION BERLIN

The students assumed the role of secret agents on a digital mission from Köln (Cologne) to Berlin by train, using the official Moodle app on their personal mobile devices. During this mission, they unlocked (or 'visited') the major cities of Germany by completing individual and collaborative challenges. The students had to complete a minimal amount of challenges to proceed to the next city, but were encouraged to complete as many activities per city as possible. To a certain degree, they were autonomous in their decision of which city to visit, however, the final destination, Berlin, always required 15 coins. Since the players gained only one or two coins per city, they needed to complete challenges in several cities to collect enough coins. With the exception of the starting city, each new city was only unlocked if two conditions simultaneously were true: (1) the player possessed the correct train ticket; and (2) the minimum amount of coins was collected. Coins could only be collected after successfully completing *group* challenges.

As shown in Figure 1, this design forced the players to visit core cities (e.g. Düsseldorf), but also encouraged them to visit side-track cities, such as Stuttgart. The same semi-autonomous structure also applies within the cities, where some activities were necessary to proceed and others were optional. An extended description of MISSION BERLIN can be found in Pardoel (2018).

Figure 1.   Amount of coins needed to unlock/access the next city

3.   Results and discussion

In total, 45,003 clicks were automatically recorded by Moodle, meaning that each student on average interacted 1,154 times (σ=282) with the software. After analysing the clicks in the Moodle logs, we could identify different kinds of players. Six students (clicks between 576 and 776) were considered to have a Low Activity (LA), seven students (clicks between 1,427 and 1,771) were labelled as High Activity (HA). As MISSION BERLIN was a school-only activity, it was expected to see clicks during school hours only. This was not the case: 9,790 clicks were recorded outside school hours. Except for one student, every other student opened the programme in their free time. However, there was a difference between the LA and HA group: on average 45% of the HA clicks were recorded outside school hours, for LA students this was only 5%.

Figure 2.   The four playing patterns, adapted from Pardoel (2018, p. 70)

[#1] Consistent (n=5)

[#2] Centralist (n=7)

[#3] Late Awakener (n=26)

[#4] Achiever (n=1)
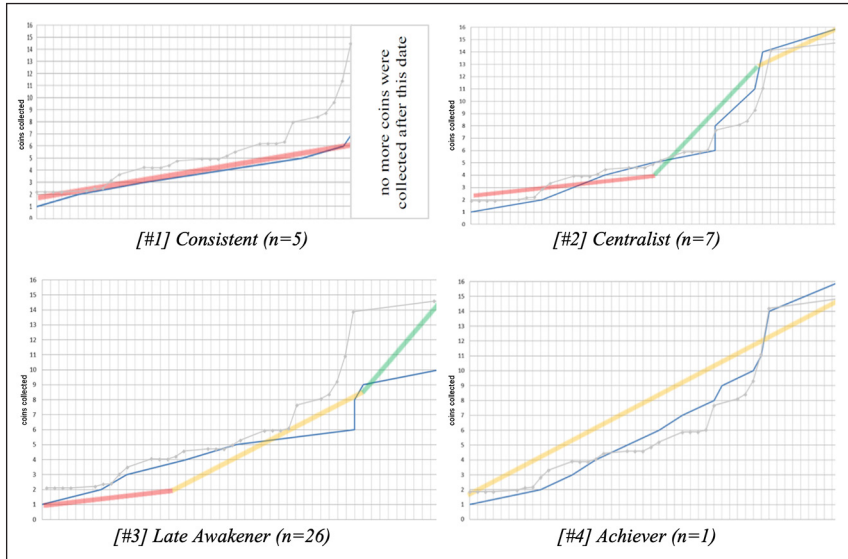
A reward schedule is the timeframe and delivery mechanism through which rewards are delivered (Raymer, 2011). Rewards are essentially a way to measure the student's achievements. The individual amount of coins, compared with the average amount of coins in the game, is an indication of the students' relative progress. Therefore, records showing an increase in number of coins collected enabled us to identify four different playing patterns: consistent, achiever, centralist, and late awakener (see Figure 2 above). Consistent players showed no increase or decrease in their coins collecting speed and tended to finish only the minimum of the required tasks to move. Achievers went beyond the minimal requirements and completed extra tasks. Centralist players started slowly, but after some time they increased their activity, only to fall back after the final objective of the game was reached. Similarly, late awakeners neglected the tasks at first, but once they noticed they were falling behind, they started participating. Our playing patterns show similarities to the four gamified leaderboard profiles as identified by Barata, Gama, Jorge, and Gonçalves (2013), however, MISSION BERLIN contains a considerably larger percentage of late awakeners.

4.   Conclusions

This paper explored playing patterns of players in a technology-assisted mobile gamified language programme at A1 level with the Moodle software, thus contributing to a better understanding of the affordances of mobile gamification in FL/L2 education.

Results indicate that HA students tend to interact with MISSION BERLIN in their free time almost as much as during school hours, unlike the LA students who seem to prefer playing mostly at school.

The study of the collaborative work in collecting coins highlighted four individual playing patterns.

The majority of the students were identified as late awakeners. Despite the fact that students were encouraged to collect more coins than necessary for their journey, only the achiever and centralist players have actively done so. The overall results indicate the need to further explore the difference in patterns between the two types of students as well as their interactions with the game.

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