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XR Enhanced Learning: an A1 Level Gamified MOOC for Italian Learning

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Abstract

The past three years have seen increasingly rapid progress in using Massive Open Online Courses (MOOCs), i.e., education delivered online on specific platforms to refine or teach several subjects. The COVID-19 pandemic that has hit the planet pushed many people towards finding new tools to experience and learn. This contribution examines how the use of Gamification mechanics and rules can be used to increase motivation and trigger the interest of foreign students enrolling at the University of Genoa to learn A1 Level Italian through an extended MOOC. Topics will be delivered on the EON-XR platform, enabling students to access brief texts and/or audio contributions as well as 3D models related to concepts dealt with by lecturers in class.

Keywords: *XR, Language Learning, Gamification, MOOC*

1. Introduction

The past three years have seen increasingly rapid progress in using Massive Open Online Courses (MOOC), lessons delivered online on specific platforms to refine or teach new subjects. The COVID-19 pandemic that has hit the planet has pushed many people to the need to find new tools through which they can obtain distance learning simply, effectively, and directly at home. There are many platforms and sites capable of offering distance learning courses open to everyone, such as EdX (42 million users in 2021), Coursera (97 million users in 2021) or Swayam (22 million users in 2021) [1]. The high level of interest around this type of cultural delivery, combined with the ease of access to information that can be obtained anywhere and at any time, leads to the increasingly widespread use of MOOCs. This situation is further accelerated by the reduced possibility of travel due to the COVID-19 pandemic, which has led people to move as little as possible away from their homes. The language courses on these platforms are numerous and have a very high number of registered users. During 2020 there was impressive growth in the number of new registered users and the topic 'Foreign Language' entered the top-ten of learning interests via MOOCs for the first time [2]. Universities have also started to provide online courses to support classroom lectures through the traditional method. This gave rise to the idea of creating a course integrating MOOCs, Gamification and Extended Reality to teach Italian in an effective and immersive way to foreign students who decide to enroll at the University of Genoa.

2. A Gamified Approach to Teaching Italian

Gamification has become one of the most used educational tools of recent decades. According to Werbach & Hunter, Gamification is 'the use of game elements and game-design techniques in non-game contexts' [3]. This design methodology is based on the stimulation of cognitive processes that satisfy certain intrinsic characteristics of the human being, (e.g., competitiveness or the satisfaction of winning), encouraging people to carry out activities they would not otherwise do. Despite the benefits that this approach has shown over the years, there are few experiences applied to teaching a new language that are not based on the mere use of the pointification technique. Gamification is often equated with the triad 'PBL', i.e. Points, Badges and Leaderboards, the only necessary elements that can be easily integrated everywhere. Of course, gamification is not that, it cannot be integrated into everything, and it is also unthinkable that it is always useful for the purpose, rather it should be seen as a tool to be associated with healthy and not unhealthy experiences. Kapp already defines it as not

perfect in every situation [4] while Werbach and Hunter, in the re-edition of 'For The Win' [5], correct the definition by calling it a mistake to consider PBL as the solution. Instead, they expand on the concept by pointing out that adopting overly competitive approaches would put those who do not feel triggered by the competition at a disadvantage and end up feeling demotivated by finding themselves at the bottom of the league table. The literature related to this topic is the initial point of an analysis that leads to the creation of hypotheses regarding innovative ways of teaching through:

- Blended activities deliverable via MOOCs with a micro-credentials approach.
- Integration of audio or video contents in SAAS (Software As A Service) platform of content delivery.
- Realization of MOOCs structured according to the theories of Serious Games and Gamification.

According to the Ministry of University and Research, 3326 foreign students were enrolled at the University of Genoa in the academic year 2020/21, of whom 634 were newly enrolled [6]. Each of these freshmen comes from different countries and cultures, bringing with them different levels of Italian language skills. Therefore, each year University of Genoa organizes a series of courses, sorting the students into different classes according to the level of preparation shown during an entrance test. Lessons are conducted online using the classic face-to-face approach in which the lecturer explains and interacts with the students to carry out exercises together and ask questions to see if they have understood the concepts expressed during the course. Although the approach used has led to satisfactory results over the years, we wondered whether the possibilities offered by Extended Reality combined with the use of a more engaging and enjoyable system for the learner could improve the level of satisfaction and language acquisition.

3. A University Survival Guide for Foreign Students

The experimentation aims to construct a MOOC that exploits the rules of gamification to teach the Italian language to foreign students enrolled at the University of Genoa. The research goal is to find a practical solution to the construction of a language course based on typical game rules that goes beyond the simple accumulation of points (pointification) or positioning within a ranking. The course is using Extended Reality technologies to deliver the proposed training content. Extended Reality (XR) is an umbrella term that contains Virtual Reality (VR), Augmented Reality (AR), and Mixed Reality (MR) technologies [7]. The lessons try to show the practical usefulness of language knowledge in everyday life, creating a sort of ‘University Survival Guide’ for foreign students in often difficult environments such as secretariats, lectures or canteens. The project considers the differences between Erasmus students, foreign freshmen, and/or students who decide to move to attend in presence the educational activities. These learners who need to take the Italian language course should, for statistical purpose, be divided into two groups each consisting of an equal number of people chosen randomly from those enrolled in the student language courses. The first group is following the ‘Traditional Course’, i.e., the class organized yearly to accompany foreign students in their knowledge of the Italian language to attend university life. The second group is following the ‘Gamified Course’, i.e., an Italian language MOOC based on game’s mechanics and rules to entice students to learn while having fun.

The level of both courses is A1, i.e., the basic level of language knowledge. The choice is dictated by a practical indication: the participants in this course are those who have shown to have almost no knowledge of the Italian language and therefore represent the best individuals to record improvements after the course. The results obtained, taking into account, however, possible internal factors (such as, for example, the actual interest in knowing the language and consequently the commitment to passing the course) and external factors (such as the set of linguistic inputs that the student will have at his disposition in everyday life and that will lead him to internalize notions unconsciously), are an important index of the progress achieved by following both types of course.

4. Methodologies & Goals

The experience delivered in XR is based on a playful component able to involve the student in what he/she is studying, immediately placing him/her in common life scenarios. The experience uses videogame’s mechanics and rules combined with a storytelling able to make the understanding of the Italian language more immediate. The methodology described above will then be used to produce use cases that can be transformed into Extended MOOCs. The idea is to create immersive lessons with specially designed 3D models for each topic treated as ‘packages’ of a more articulated training course. Each package should have at least one learning outcome that can be classified and linked to at least one micro-credential. In this way, it will be possible to build Extended MOOCs exploiting not

only pedagogical methodologies but also those of Game Design and Gamification to work on some degree courses of the University of Genoa.
Topics are delivered on the EON-XR platform [8], service offered by EON Reality for sharing 3D models and creating lessons from them. The student are not only able to manipulate specially made 3D models with his/her own hands, but also have at disposal texts, videos and audios designed to accompany him/her in language acquisition and in the everyday university world. The decision to use this platform was prompted by the desire to make the content created easily available on any existing device. Students do not need to have powerful hardware to be able to enjoy the lessons, but with an Internet connection they will consult the entire course. The approach used creates opportunities for interaction and collaboration using Extended MOOCs as a key feature of the learning experience. In fact, the platform provides the possibility of shared lessons between several users, thus making the experience livable with other course mates.
Furthermore, the intention is to understand the actual effectiveness of the chosen learning method by comparing the results obtained by students who underwent the 'Gamified Course' and those who followed the 'Traditional course' provided by the University of Genoa. Data will be collected through profit tests given at the end of the teaching modules to assess the differences between the skills obtained by the group using the gamified version of the MOOC and the control group of those following the traditional course. The tests will present closed-ended questions to facilitate the evaluation and quantification of the result obtained. There will be exercises with True/False questions, targeted cloze, reordering, matching and multiple-choice questions. The results obtained will show us whether the playful approach we have chosen has been correct or whether it needs corrections in the content offered and the mechanics chosen.

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