Teaching in the Metaverse: Recreating an Italian Level A1 Course in Meta Horizon Woorkrooms

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Abstract

In recent years, the concept of the Metaverse has led to considerable ethical and moral discussions about the digital creation of an alternative world. Despite the extensive investments made by multinationals such as Meta [1] *or Roblox* [2]*, the possibilities offered by the Metaverse in Virtual Reality have not yet been able to meet expectations due to issues such as the high cost of Head-Mounted Displays and a low presence of active users. The creation of virtual lessons that can be delivered directly within the Metaverse is an aspect that has not yet been properly explored and could finally lead to effective use of the virtual worlds born in recent years. This paper aims to lay the theoretical and practical basis for transporting a course designed to teach Italian at level A1 within the immersive environment of Meta Horizon Workrooms* [3]*. The features offered by the virtual office created by Mark Zuckerberg's company can provide a safe environment in which to engage students while keeping their active attention on the educational objective and avoiding the distractions caused by distance learning.*

Keywords: *Virtual Reality, Metaverse, e-Learning. Language Learning*

1. Introduction

In recent years, the concept of the Metaverse has led to considerable ethical and moral discussions about the digital creation of an alternative world. The term "Metaverse" was initially coined within the science fiction novel "Snow Crash" by Neal Stephenson and represented a virtual world accessible through special glasses and earphones used as an escape route by the protagonist to dissociate from the problems of his life and live an alternative one through his own avatar [4] [5]. The key elements of the experience described in the novel are the same as those found today within Virtual Reality (VR) experiences that immerse us in various Metaverses where we increasingly find ourselves working or interacting with others. The technological evolution initiated in recent decades on the topic of Virtual Reality and the growth of worldwide sales of Head-Mounted Displays (HMDs) has made immersive worlds created for the Metaverse more accessible to everyone. According to *Statista.com*, based on sales in recent years, the annual global shipments of VR HMDs will reach 59.7 million devices in 2025, demonstrating the enormous growth in public interest in such products [6]. The trend just described has been dictated, in part, by the decrease in the costs of VR headsets, which for many years were high and made this technology inaccessible to many people [7]. This change has led many companies to be interested in the possibility of recreating a virtual world based on the theory of digital twins, the possibility of having a real object even in the Metaverse [8]. Despite the extensive investments made by multinationals such as *Meta* or *Roblox*, the possibilities offered by the Metaverse in Virtual Reality have not yet been able to meet expectations due to issues such as a low presence of active users. An unexplored aspect that could lead to the effective use of virtual worlds created in recent years is the creation of virtual lessons that can be delivered directly within the Metaverse. The aim of this paper is to establish the theoretical and practical framework for transporting a course designed to teach Italian at level A1 into the immersive environment of *Meta Horizon Workrooms*. The virtual office, created by

Mark Zuckerberg's company, offers features that can provide a place for engaging students and maintaining their active attention on the educational objective while avoiding the distractions caused by classic distance learning.

2. Meta Horizon Workrooms Environmental

Meta Horizon Workrooms is a platform developed by *Meta* with the goal of providing a virtual space for conducting meetings with colleagues, collaborating, and working in a VR environment [9]. The aim is to enhance the immersive quality of remote meetings beyond the conventional video conferencing method, which solely displays the webcam footage of the attendees. The platform incorporates avatars endowed with realistic features to enable users to engage with one another as if they were present in the same physical space. This promotes an authentic experience akin to in-person communication, as users can establish eye contact and adjust their physical proximity to their interlocutors, thereby reducing feelings of isolation [10]. However, *Horizon Workrooms* does not appear to be particularly popular, as according to a study conducted in the USA, only 8% of respondents had come into contact with the platform, while 55% stated they had never heard of it [11].
In the aftermath of the pandemic, the imperative to shift educational programs towards remote delivery has prompted numerous educators to embrace innovative technologies as means to effectively disseminate content and explore new platforms. Among these, the integration of VR into instructional design has emerged as a viable solution to bridge physical distances between learners, heighten immersion and foster a sense of belonging among students that surpasses that afforded by traditional videoconferencing software. The utilization of VR allows for the realization of interactive and simulated classroom experiences that facilitate meaningful interpersonal interactions among students [12]. The *Horizon Workrooms* platform offers a secure and safe learning environment, incorporating features that mitigate the anxiety associated with making mistakes. The primary objective is to harness the potential of this platform to facilitate an immersive educational experience akin to that of a traditional classroom, rather than limiting its use to business meetings.

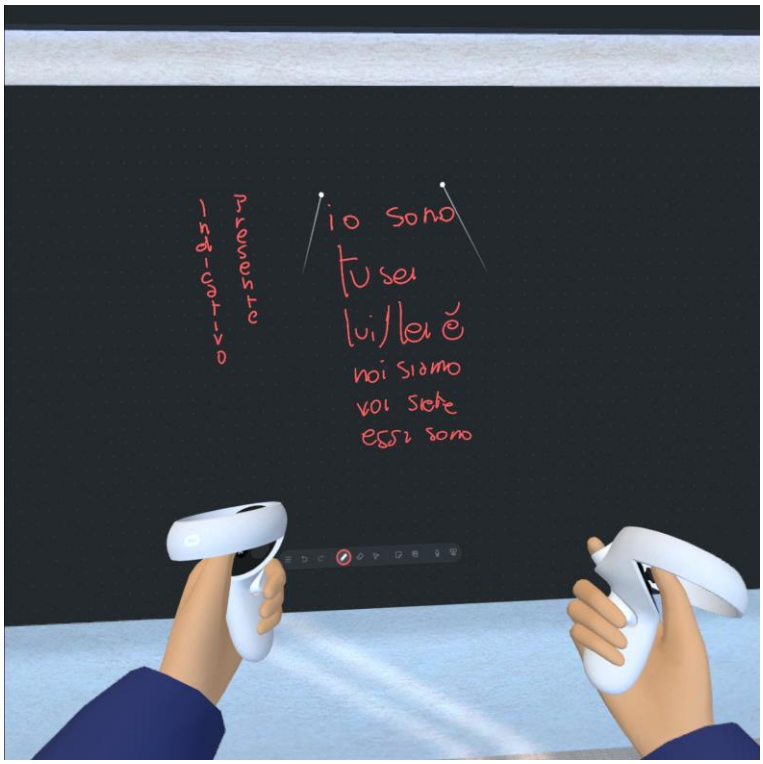

Fig. 1 Example lesson on the Italian present simple in Meta Horizon Workrooms

3. Recreating an Italian Level A1 Course

The course that will be developed is the transposition of a gamified MOOC that already exists on EON XR platform [13], with the aim of overcoming the difficulties that emerged in the first design of the experience [14]. The study aimed to develop a gamified distance learning course tailored for foreign students or Erasmus who possessed limited proficiency in the Italian language. One of the primary hurdles encountered in delivering the course was to create the content in advance to enable students to utilize it autonomously. This necessitated the identification of essential concepts, which could be applied in students' everyday lives, without the ability to cater to each learner's unique requirements. The challenge, therefore, was to anticipate the most relevant content based on educational experience, which could benefit the majority of the users. However, some essential elements for language teaching, such as pronunciation exercises, reading practices, and the application of what was learned in direct dialogue with an interlocutor, were not managed and analyzed by the platform, thus unable to provide direct feedback to the students.
Our aim is to replicate the essential aspects of a traditional in-person classroom experience while removing geographic constraints, using a platform that facilitates natural voice dialogues and virtual prosody between students and teachers. To achieve this, *Horizon Workrooms* platform offers three distinct models of virtual classrooms, which can be customized by the teacher to meet different levels of engagement and individual student needs. The virtual projector, inside the virtual room, allows reflective discussions on video, audio, and textual files that can be commented collaboratively by all the students present. The classroom also features a blackboard on which students can perform exercises by writing on it using the lower part of their controller, simulating the experience of using a real marker pen [15].

Fig. 2 Students can follow the lesson on the blackboard while using the learning materials on their PCs directly in the virtual environment.

The teacher is not constrained by the platform to choose only exercises that can be managed by the development environment's capabilities, such as multiple-choice questions or object recognition within a scene. On the contrary, the teacher is free to select activities that are best suited to the students' needs. Through screen sharing with the projector, the teacher can also use third-party services or content as valuable supports for the lesson. Moreover, the simultaneous presence of the teacher and students allows for immediate resolution of any issues related to the acquisition of specific content. This prevents students from feeling confused or lost in front of something they do not understand. Peer dialogue exercises can be easily carried out using students' avatars, which, by representing them

virtually, make them more relaxed and inclined to make mistakes compared to when they are face-to-face with their classmates [16].

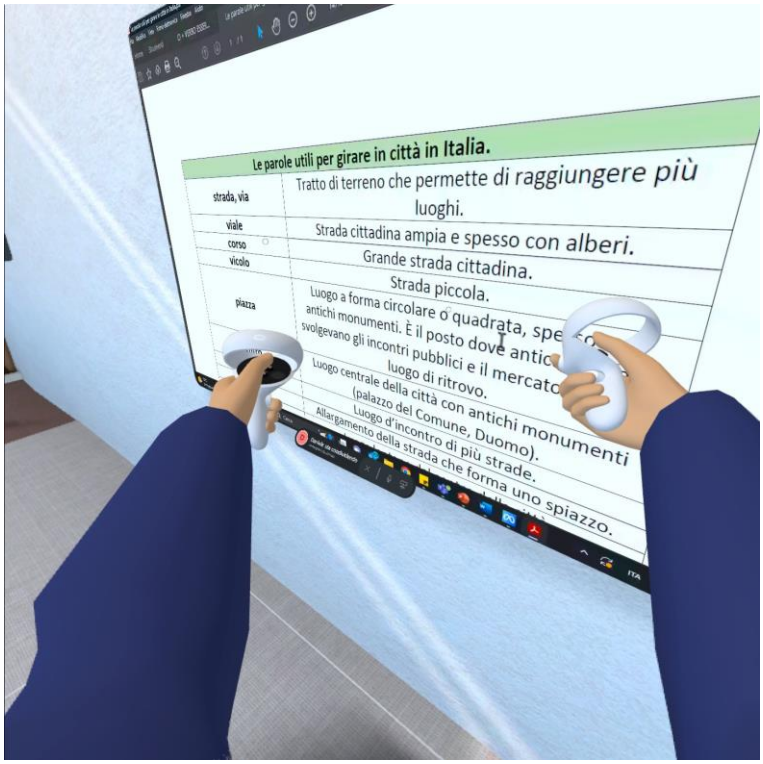

Fig. 3 The teacher can share his or her PC screen in the virtual environment as a teaching aid.

4. Conclusions

Meta Horizon Workrooms has the potential to serve as an immersive and immediate environment for reproducing traditional teaching styles. Distance learning can help prepare students for the Italian language before enrolling or transferring to Italian universities, equipping with basic knowledge upon arrival. However, the main challenge is access to HMDs, which are still considered expensive or not useful in daily tasks, but their usage is expected to increase in this decade. The foundation, needed to create a course within the Metaverse that can be considered a digital twin of the same experience in the real world, already exists. Educators must embrace these types of content in the coming years to fully leverage the potential offered by immersive virtual worlds.

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