

IMMERSE: Learning Culture in the Language Learning Classroom Through VR

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Abstract

This article presents the initial phases of the European project IMMERSE, funded by Erasmus+ KA2, which aims to innovate foreign language teaching by incorporating virtual reality (VR) and 3D objects. Focused on the university context and international students, the project proposes to integrate cultural content in language teaching through immersive environments that facilitate intercultural competence. After a theoretical review of the concept of culture and its nexus with language learning, as well as the effects of VR on foreign language learning, we conclude that this technology is a beneficial tool to facilitate authentic and meaningful cultural experiences. The article describes the development of a methodological framework based on teacher consultation, analysis of digital resources, and participatory session design. Based on this framework, structured templates for cultural sessions in VR have been created, adaptable to different CEFR levels, and focusing on five macro-themes: gastronomy, traditional music and dance, landmarks, festivities and traditions, and key personalities.

An example of a session for Catalan as a foreign language class focusing on Gaudí and Dalí is presented, combining visual, textual and interactive elements with assessment activities. This session is used as a starting point to discuss the challenges and opportunities of these new technological developments.

Key words: Virtual reality, foreign language teaching, intercultural competence, cultural heritage, Catalan

Introduction

Immerse is a project funded under the Erasmus+ funding scheme that seeks to innovate language learning for foreign language students by incorporating 3D objects and virtual reality (VR) technologies. More specifically, the project aims to integrate culture-related activities in the foreign language learning classroom, especially addressing university students on an exchange in a foreign country. This article focuses on the initial stages of the project, in which a framework for integrating cultural elements into language teaching has been developed, as well as a series of VR training scenarios.

The article begins with a short overview of the IMMERSE project, followed by a discussion of the concept of culture in language learning. The potential of VR for language learning is explored, highlighting how it is expected to benefit learning processes. The article then describes the methodology followed to define the framework for the design of the VR training sessions and provides the example of a complex VR training session based on Gaudí and Dalí as key figures in Catalan culture. After presenting the session, we discuss the challenges and opportunities encountered in the initial steps of the project, often balancing instructional design, creativity, and technical feasibility, as well as the next steps, which will involve user testing in the classroom.

The IMMERSE project¹

The IMMERSE project is led by Reykjavik University, and it involves two additional higher education institutions (Technical University of Crete, Universitat Autònoma de Barcelona), Greek spin-off company INFALIA, and Spanish training company FEMXA. IMMERSE aims to foster the cultural integration of foreign students in the higher education institutions taking part in the action by using 3D objects and VR environments to train students on cultural aspects in Catalan, Greek, Icelandic, and Spanish. To achieve this aim, the project follows four different steps.

The first step in the project has been the design of the VR training scenarios for cultural lessons. To this end, teacher consultations and a desk review, together with some hands-on activities with virtual reality content, have been carried out to better understand the potential of the technology. The design of the VR training scenarios is the focus of this article.

The second step is the population of a database with all the objects that will feed the training sessions (i.e., images, videos, 3D objects, text, etc.) as well as the improvement of an authoring tool that will be used to create the VR training scenarios in the next phase of the project. This is undergoing as this article is being written in 2025.

The third step will be the development of a VR training platform where students can access the training sessions and the required preparation of the educators to use such a platform. This step is necessary to conduct the pilots in the fourth step of the project, where students from different universities will use the materials to learn more about the culture of their host university's country. A document with a list of recommendations for higher education institutions will be generated at the end of the project, after the pilots and related evaluation activities are concluded.

As mentioned at the beginning, the IMMERSE project focuses on the teaching of culture in language-learning courses for international students at higher education institutions. Therefore, a necessary first step was to understand the concept of culture and how it relates to language learning.

Culture and Language Learning

The concept of "culture" is difficult to define, and, in fact, it is even more difficult to find two equal definitions (Barrera, 2013; Páez & Zubieta, 2004). Although our intention is not to find a standard definition, it is important to keep in mind that this term is not limited solely to tangible objects, such as works of art, or to spaces, such as historical, archaeological, or natural sites. Culture also includes oral traditions, artistic expressions, social practices, rituals, festivities, cosmovision, practices, and knowledge related to nature and the universe, etc. (UNESCO, 2003).

Therefore, we could consider cultural heritage as a combination of society and social norms and values, as well as tangible and intangible elements. On the one hand, the concept of tangible cultural heritage encompasses all assets that possess a physical embodiment of cultural values, including heritage cities, historic towns, buildings, archaeological sites, cultural landscapes, cultural objects, collections, and museums (Buragohain et al., 2024). Tangible cultural heritage is hypothetically more amenable to management, as its condition and integrity can be more readily evaluated. Nevertheless, it is susceptible to a range of processes that can damage or destroy the asset and its associated cultural values, with tourism recognized as a significant stressor (UNESCO, 1999). In essence, tangible cultural heritage can be categorized into three overarching categories: buildings and archaeological sites; heritage cities;

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cultural routes; cultural landscapes; and movable cultural property and museum collections (du Cros & McKercher, 2020).

On the other hand, intangible cultural heritage is defined as encompassing both inherited traditions from the past and contemporary rural and urban practices in which diverse cultural groups participate. These manifestations, which are transmitted intergenerationally, evolve over time to adapt to the environments in which they develop and contribute substantially to creativity and to providing a sense of identity and belonging to a group, thus facilitating coexistence and cohesion in a particular community and in society at large (UNESCO, nd_{1,2}). Traditional craftsmanship, oral traditions, languages, performing arts, rituals, festivals, cosmovision, knowledge, and practices related to nature, among others, are considered intangible cultural heritage (UNESCO, 2003). Evidently, languages are included in this select group as they are not only part of the intangible heritage themselves, but also act as a vehicle for an important part of the culture they represent. That is why learning a foreign language involves much more than the lexical and syntactic mastery of another communicative code. It entails learning about another culture, with all that this implies: customs, social and communicative norms, values, ways of understanding the world, etc. And to achieve this cultural learning, social interaction is necessary, since language and culture are inseparable concepts (Brown, 2007; Hernández Campoy & Scheu, 2013; Ramírez et al., 2018; Sun, 2013). In other words, a foreign language lesson must include an intercultural dimension. Language learning should be focused on preparing learners for real-life situations (Council of Europe, 2020) and, therefore, the inclusion of cultural aspects in foreign language lessons becomes even more relevant.

The intercultural dimension in the foreign language classroom understands learners as individuals who will potentially explore different social identities, and it is therefore important to avoid simplifications or cultural stereotypes, since the aim is not for students to imitate native speakers (unlike traditional approaches) but for them to acquire a twofold competence: linguistic and intercultural competence (Byram & Starkey, 2002). The success of learners' intercultural development will be closely related to teachers' ability to impart cultural content and facilitate navigating cultural differences and resolving related challenges (Sun, 2013). To achieve that, and to make the learning experience more meaningful and relevant, adapted teaching materials are needed (Ramírez et al., 2018).

However, didactic materials are not the only challenge to incorporating culture into foreign language teaching. In the first place, teachers should receive training that equips them to adopt an effective intercultural approach (Sun, 2013), as well as access to updated resources to successfully integrate culture into their classes. In this regard, digitization and new technologies can play a relevant role. New technologies have been integrated into foreign language classrooms, allowing students to interact with individuals from diverse cultural backgrounds and access cultural information online, but there is still a lack of cultural training. Intercultural competence is not inherently developed through exposure to different cultures; it requires training in critical reflection, self-assessment, and guided instructions to support learners' development (Stockwell, 2018).

Although different methods have been implemented over the years to include the cultural spectrum in the classroom, modern technological advances have precipitated significant change in this field, allowing, for example, the integration of mobile phones and computers. These initiatives have proven useful in providing students with access to authentic cultural content and in reinforcing their engagement in learning, as they can control the selection and application of interactive materials and resources (Dema & Moeller, 2012).

Following the same line of providing an interactive, culturally relevant and realistic scenario for students to reinforce and practice their linguistic and cultural learning with autonomy, virtual reality (VR) emerges as an innovative tool that offers

immersive experiences, enhancing the acquisition of linguistic and communicative skills.

VR and language learning

Over the last few years, VR has emerged as an innovative pedagogical tool with great potential in the field of foreign language teaching. This tool promotes learning by performing meaningful tasks in genuine contexts with an action-oriented methodological approach (Council of Europe, 2020).

Several authors have analyzed recent studies on VR and language learning, such as Özgün and Sadik (2023), who reviewed 32 published studies, and Ece, Balkan, and DİNÇER (2023), who focused on 21 articles.

Both studies conclude that VR stimulates learners' motivation and engagement, leading them to invest greater dedication in its practice, which is reflected in improvements in their language skills. Specifically, an improvement is identified in aspects such as lexical acquisition and oral expression and comprehension. This may be due to the fact that VR offers realistic, immersive and contextualized training scenarios as opposed to traditional methodologies. Dooly and López Vera (2024) agree that VR offers advantages by enabling more immersive, authentic, and contextualized interactions, which promote more spontaneous use of the language being learned and better performance with more active communication strategies, as well as benefit students who tend to be less participative.

Despite all the advantages identified, the implementation of VR in language learning contexts also faces several challenges. Dooly and López Vera (2023) note that students' linguistic accuracy is reduced, and both Özgün and Sadik (2023) and Ece, Balkan and DİNÇER (2023) note that the extended utilization of VR can cause ocular discomfort, headache, or dizziness, so responsible management of the time allocated to this tool is imperative. Moreover, the reduction in direct interaction with the instructor, consequent to the virtual environment, could compromise effective linguistic acquisition due to the lack of personalized support. Finally, these authors find that there are technological, economic, and insufficient teacher training barriers that pose a challenge for the integration of VR in foreign language classrooms.

All in all, the studies suggest that VR is an effective tool for enriching foreign language teaching and learning through its ability to provide realistic, meaningful and engaging communicative environments, although it is necessary to carefully schedule the time devoted to this tool, and to integrate the instructor to ensure a balanced linguistic accompaniment between the autonomy that VR allows and the irreplaceable benefits of having a teacher.

In this sense, IMMERSE intends to use the benefits identified in VR for learning a foreign language in order to provide the necessary cultural learning that is inherent to any linguistic competence. To avoid the disadvantages identified in this tool, our approach is proposed for implementation in the classroom under the constant accompaniment of the teacher. This ensures that students experience a sense of autonomy and have the opportunity to explore their own capabilities and limits, without losing at any time the guidance and support of the teacher. The initiative is also conceived as a complement to the language teaching-learning process and is integrated into a specific part of the class session. This avoids prolonged exposure to VR and favors its use as a selective activity, within a broader didactic sequence. Thus, students can approach realistic and culturally significant scenarios of the language they are learning, without having to leave the classroom, thereby enriching their educational experience from both a linguistic and intercultural perspective.

VR and the Teaching of Culture

In relation to the teaching of culture through VR, some progress has been made in academia. The IMMERSE team has selected some recent studies to assess the current benefits, needs, and limitations of VR as a tool for cultural learning (Akdere et al., 2021; Lei Gao et al., 2021; Knutzen et al., 2025; Tafazoli, 2024; Berti, 2021). These studies explore different degrees of cultural immersion, types of users (students or teachers), and methodological approaches, providing a broad overview of the current state of the field and allowing us to compare the results obtained to date.

According to these studies, VR has been confirmed as an instrument that, beyond its technological appeal to students, provides access to contextualized, multisensory and meaningful cultural experiences, which promote understanding of cultural practices that are difficult to encounter in a traditional classroom (Berti, 2021; Akdere et al., 2021). It is also an effective tool for stimulating students' interest and promoting active learning, among other benefits (Lei Gao et al., 2021; Knutzen et al., 2025). Even in contexts with limited technological resources, where the virtual environment is projected onto a screen within the context of a traditional classroom and where there was initially a certain degree of rejection of VR on behalf of teachers (Tafazoli, 2024), a transformative shift in teachers' perceptions of the educational value of VR for cultural teaching has been observed. This suggests that the success of VR is not as much due to its technical sophistication as to its meaningful integration into sustainable teaching practices.

Although the potential of VR for acquiring intercultural skills is clear, the results of the studies consulted also reveal uneven effectiveness in measurable learning, which must be taken into account. There is indeed a general increase in motivation and commitment on behalf of students (Knutzen et al., 2025; Lei Gao et al., 2021), but not all of the studies identified significant improvements in the acquisition of cultural or linguistic skills compared to traditional methodologies (Akdere et al., 2021; Knutzen et al., 2025). Furthermore, the objective of implementing VR in the studies consulted to date is not homogeneous: some use it as the main means of cultural teaching (Akdere et al., 2021; Lei Gao et al., 2021), while others integrate it as a complement to traditional classes or a stimulus for teacher reflection (Tafazoli, 2024). Furthermore, we observe that the lack of prior experience among teachers using VR, technological barriers, and limited resource availability (Tafazoli, 2024; Berti, 2021) appear to be limitations that IMMERSE will need to address.

In particular, the IMMERSE project stems from the need to design templates and teaching sequences as pedagogical support to integrate VR with cultural content consistently, without neglecting the objectives of the linguistic curriculum. The challenges identified by the aforementioned bibliography are addressed by IMMERSE's methodology. IMMERSE intends to provide teachers with resources that are both structured and customizable, and do not require advanced technical knowledge. These resources enable them to combine immersive cultural experiences with pedagogical support and training assessment. IMMERSE does not seek to replace face-to-face learning with virtual scenarios, but rather to integrate VR as a flexible, adaptable tool for all language levels, teaching needs and methodologies.

In the following section, we present the method developed from the IMMERSE approach, including the initial theoretical review, the available digital cultural resources, and consultations with teachers, which form the basis of the project. This is followed by the definition of the five cultural macro-themes addressed on the immersive platform and the teaching template for the VR cultural sessions. Finally, we will explain some selected excerpts from the session dedicated to two key figures in Catalan culture: Gaudí and Dalí.

Methodology

As mentioned above, the first step of the IMMERSE project has been the design of the VR training scenarios for cultural lessons. To achieve this aim, three different steps have been taken.

First, preparatory work was undertaken at different levels:

- a literature review on culture and language learning, with an emphasis on immersive environments, was carried out;
- an analysis of the availability of free online resources and 3D objects linked to Icelandic, Greek, Spanish, and Catalan culture to be integrated in the training sessions;
- consultations with 15 language teachers to gather firsthand insights into the development of instructional materials and to better understand if cultural elements are incorporated into the curriculum.

The result of this preparatory work is available in the project deliverable 3.1., available in open access at <https://zenodo.org/records/15404088>. This was the basis for the development of the training sessions according to the methodology described next.

Second, a partner focus group discussion identified the cultural aspects the project would focus on. In the consultations, teachers usually referred to traditions, habits and customs, gastronomy, historical events, interpersonal relationships, music and songs, natural or cosmopolitan surroundings, art, architecture, key figures, information regarding other territories where the same language is spoken (if applicable), and cinema. These suggestions, together with the UNESCO classification of intangible cultural heritage (UNESCO, nd), were the basis for the discussion in which five macrothemes emerged: 1) gastronomy, 2) traditional dance and music, 3) landmarks, 4) festivities and traditions, and 5) key personalities. It was agreed that one virtual training session would be developed for each of the previous macrothemes and for each of the languages in the project. Regarding language levels, it was agreed that "culture has no level" (Stockwell, 2018; Ramírez et al., 2018); hence, the same macrotheme could be approached in any language learning context, with the necessary adjustment of the training materials. In other words, when approaching gastronomy in Spanish (by developing a session on how to cook a "tortilla de patatas" or Spanish omelet), the same VR environment and theme can be used with adaptations to the accompanying materials, such as written texts, videos or instructions. This was considered an adequate way to address both technical concerns and pedagogical concerns: on the one hand, technical resources are limited for the development of virtual reality scenarios. On the other hand, teachers highlighted that any cultural element can be worked on at different language levels, with various degrees of complexity.

Third, an initial template for the training sessions was developed and revised by project partners. The template aimed to capture all the learnings from the previous steps and provide an easy way to structure a VR training session, while considering key pedagogical elements in instructional design. After a series of iterations, a final template was developed, including the following key items:

- Macrotheme and sub-theme. For example, Christmas could be a sub-theme of Traditions and Festivities.

- Objectives focusing on the teaching aim and the cultural knowledge the session intends to convey.
- Learning outcomes, indicating what the students should be able to do by the end of the session. Learning outcomes are presented by the language levels covered in the project (A1, A2, B1, B2) as they may differ, even if the virtual setting is the same.
- Language skills, i.e., how culture-related activities may enhance oral or written expression, listening comprehension, reading or grammatical skills per level. This was included as a suggestion as teacher consultation showed their interest in practicing language learning through culture-related activities.
- Resources, which include a description of the environment or environments where virtual action is taking place. For instance, a kitchen or a museum. For each environment, the template allows for the inclusion of different items and associated objects per language level, such as external videos, images or texts.
- Assessment, i.e., the description of evaluation activities and how they are integrated in the training session, per level.
- An open field for additional comments.

This template was used by partners to develop one training session, one for each macrotheme. All sessions were peer reviewed both from a technical and a pedagogical perspective, and the feasibility of the template was confirmed. It was also observed that some training scenarios were highly complex from a technical perspective. Considering the resources allocated to the project, it was decided to develop scenarios with different degrees of complexity by reusing content where possible. Needless to say, templates may still change as we begin using the authoring tool and implement them. Next, we present the results from one sample session in Catalan. We do not reproduce the whole template but select a series of excerpts.

Results: A sample session on Gaudí and Dalí

In this sample, an immersive, multilevel learning environment about the modernist architect Antoni Gaudí and the surrealist artist Salvador Dalí is presented. Texts, audios, 3D objects, images, and interactive content are provided for CEFR levels A1, A2, B1, and B2. Although this excerpt from the session is subject to later modifications once we begin the implementation phase, below we present part of the proposed session as an example of how IMMERSE's training sessions are organized. The template begins by specifying the general **objectives** of the unit; in this case, the proposal is to introduce Gaudí and Dalí and their main creations, as well as to foster the acquisition of competences related to art and architecture in the context of Catalan culture. The objectives are phrased as shown in Table 1 and are applicable to all language levels, although the specific learning outcomes, activities, and assessments proposed will differ.

<ul style="list-style-type: none"> • To introduce Gaudí and Dalí as key figures of Catalan culture representing the artistic movements of Modernism and Surrealism in Catalonia. • To learn how to identify the most well-known works of Gaudí and Dalí and discuss them. • To foster linguistic competence related to art and architecture in the context of cultural discussions.
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Table 1. Sample objectives

The **learning outcomes** that are expected are the acquisition of basic vocabulary and elementary information about Gaudí and Dalí (A1 and A2), and the ability to describe and express opinions or information about the works of these artists (B1 and B2). The template includes learning outcomes organized by language level and suggests a maximum of three per level, suggesting a list of verbs and advocating for clear phrasing. We present two sample learning outcomes, for A1 (Table 2) and for B2 (Table 3), describing what the student will be able to do.

<ul style="list-style-type: none"> • Recognize basic vocabulary related to art, architecture, Gaudí and Dalí, such as <i>pintura</i> (painting), <i>escultura</i> (sculpture), <i>arquitectura</i> (architecture), <i>surrealisme</i> (surrealism), and <i>modernisme</i> (modernism). • Understand basic information about Dalí and Gaudí when spoken slowly and clearly in Catalan or in simple written texts. • Participate in simple guided discussions and answer basic questions in Catalan about Dalí and Gaudí's works using short sentences or phrases.

Table 2. Sample learning outcomes for A1

<ul style="list-style-type: none"> • Explain the symbolism or features of Dalí's surrealist works or Gaudí's architectural style, using more complex language. • Compare the different artistic styles of Dalí and Gaudí, making clear points such as "Mentre que Dalí creava imatges irracionals, Gaudí dissenyava formes naturals i orgàniques" (While Dalí created irrational images, Gaudí designed natural and organic shapes). • Express and justify their opinions on Dalí and Gaudí in more detail.
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Table 3. Sample learning outcomes for B2

Whereas both levels introduce Gaudí and Dalí as key figures and link them to Modernism and Surrealism, in line with the general objectives (Table 1), what students will be able to do at the end of the training sessions will differ according to their level: A1 students will stay at the level of recognizing basic vocabulary whilst B2 students will be able to explain some features. Likewise, A1 students will only respond to very basic questions in a guided discussion, whilst B2 students will be expected to be able to elaborate more on their responses.

The third part of the template includes a detailed description of the **language skills** that students will be able to practice during this cultural session, including vocabulary, grammatical structures, and communicative functions, which will be worked on at each level. A1 learners will use basic structures such as the present indicative and affirmative and negative sentences, while B2 learners will use more complex structures such as the subjunctive and will learn more specific vocabulary, such as "perspective" or "symbolism," and how to express and justify their opinions. As an example, we show below the language skills for B2 level (Table 4). Please note that these activities are not expected to take place in the virtual world. As explained at the beginning, we have designed these scenarios to be integrated into the classroom, with the support of the teacher. Hence, in this section of the template, we list linguistic aspects that can be easily worked on in relation to the VR content, but it will be the teacher who will need to adapt it to their teaching unit design. Our template is nothing

but a general framework that a) shows the specificities of the virtual world that will be designed, and b) makes suggestions to teachers, who can then adapt it to their needs.

<p>B2 — Students will participate in discussions where they will be required to defend their opinions on the significance of Dalí and Gaudí's works in modern art and architecture, using detailed arguments. They will also be expected to narrate their own experience of encountering the works of Dalí or Gaudí.</p> <p>Tasks will involve comprehending in-depth explanations of Dalí's and Gaudí's works, including the historical, cultural, and artistic contexts. Students will be required to understand more subtle meanings and specific details. Vocabulary learning will focus on advanced art and architectural terminology and expanding idiomatic expressions to talk about art and impressions. Grammatically, students will engage with subjunctive structures to articulate reservations or perspectives regarding Dalí and Gaudí's works (e.g., <i>"Es possible que l'obra de Dalí hagi influït en altres artistes"</i> – It's possible that Dalí's work has influenced other artists). They will also employ complex sentence structures with connectors (e.g., <i>tot i que</i> – although, <i>a causa de</i> – because of) to facilitate comparison and contrast.</p>
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Table 4. Sample language skills for B2

The fourth part of the template structures and describes the digital teaching **resources** associated with the immersive learning scenario being built. It is organized into a series of numbered items corresponding to different points of interest along the itinerary (such as buildings, artworks, or symbolic spaces in Barcelona). A recurrent structure is followed, with information divided into three main blocks: environment, items and objects, and assessment.

a) Environment. The environment describes the virtual scenario learners will encounter, which should lead them to the didactic cultural content and subsequent assessment activities in a guided and coherent manner within the immersive reality proposed in each session. Some environments may be exclusive to certain units, and others may be shared in more than one unit. We can have more than one environment per unit or the same environment for the entire session. For example, in the case of the session dedicated to Gaudí and Dalí, the environment is a recreation of the city of Barcelona (Environment 1), which changes once students approach Dalí (Environment 2). Table 5 illustrates the description of the environments that will be developed.

<p>Environment 1: The scene is set in the city of Barcelona, with clear indications of the location of Gaudí's most iconic buildings, seamlessly integrating them into the environment. There is a girl with whom students need to talk to in order to start the experience with the introduction video. Ideally, this girl should look like the girl in the video. Near the last Gaudí building (Sagrada Família) a figure of Salvador Dalí can be seen in the street, admiring it. This figure transitions to the second environment, a surrealist one, which allows us to explore the artist's work.</p> <p>Environment 2: The figure of Dalí, with whom students can have a short dialogue to transition to a different historical period, a different conception of art and a different artist, leads us to a surrealist environment. This environment is set under a dome that depicts the background of one of Dalí's most famous paintings (for example, <i>Inaugural Gooseflesh</i> or <i>Enigmatic Elements in a Landscape</i>).</p>
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Table 5. Sample environments

These changes in the environment are intended to make the session truly meaningful and representative of these Catalan figures. Gaudí's work is concentrated mainly in Barcelona and has played a decisive role in shaping the city as we know it today, so this serves as the setting for the activities related to the architect. In the case of Dalí, known for his extravagance and distinctive surrealist style, more fluid and dreamlike environments are created, evoking the personality of the artist. Each environment will have different items with associated objects, as described next.

b) Items and objects: Each item begins by identifying a specific place, representing a stop along the route. The visual or interactive context of the space is described, along

with how it is accessed within the experience. As an example, here are two of the heritage elements we work with in this unit: Casa Batlló, in the section dedicated to Gaudí, and a first approach to Salvador Dalí.

In the first case, we can see that next to the item number (in this case, 4), there is an explanation of how to access it (via an indication labelled "Casa Batlló" in the main environment we saw previously). Below is the list of objects that will be shared across all levels—in this case, two 3D models of Casa Batlló and a video, which will be shared only with levels A1 and A2. In the specific objects section, there is a text for level B1 and an audio recording for level B2 (Table 6). These associated objects can be of different natures (text, audio, video, images, etc.) and can be existing or created ad hoc for the experience. If it exists, copyright clearance needs to be considered.

<p>Item 4: The sign indicating “Casa Batlló”, leads to this house.</p> <p>Associated objects per level (text, audio, video, etc.)</p> <p>Shared:</p> <p>3D model of the exterior.</p> <p>3D model of an interior room.</p> <p>Video (A1 and A2 level)</p> <p>Specific:</p> <ul style="list-style-type: none">• B1: Text about the history of Casa Batlló.• B2: Listening.
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Table 6. Sample item (Gaudí)

In the case of Dalí, we included a 3D figure of the artist observing the final Gaudí building explored in the session—the Sagrada Família. When students interact with him, they are transported into a surrealist setting where the related activities take place. In this environment, they are given access to a bust of Dalí which they can touch. Depending on which part of the bust they interact with, students can view different short videos of the artist. These videos serve both as an introduction to Dalí and as a gateway to understanding his artistic legacy and his significance to Catalan culture. Table 7 presents the sample item.

<p>Item 7. There is a bust of Salvador Dalí in the left hand when entering the dome. By touching this bust, the students will have access to some activities that will allow them to better know the artist.</p> <p>Associated objects per level (text, audio, video, etc.)</p> <p>Shared: Bust of Salvador Dalí. The bust is zoomed in. To access the activities related to this item, the students will be able to touch the upper part of the head, which will lead to the first video; the eyes, which will lead to the second video; the mustache, third video; and the mouth, fourth video.</p> <p>When touching the head, eyes, moustache or mouth, students are shown short video clips in which Salvador Dalí appears—sometimes working, sometimes giving interviews, or even reciting. Each video lasts only a few seconds, and while the exact content may vary, the aim is not to analyze what Dalí is saying or doing in detail. Rather, these brief moments allow students to begin forming a more intuitive understanding of who Dalí was—how he moved, how he spoke, and how he presented himself.</p>

Table 7. Sample item (Dalí)

Finally, a description of the **assessment** activities associated with the cultural content presented is included. These activities may be common to all levels (please note that we aim to teach culture and that culture has no level), although they may also be specific to each level (in case the activities require certain language skills). In this session, we can find activities such as multiple-choice questions, true or false statements, fill-in-the-gaps activities, matching exercises between words and definitions or images, listening or reading comprehension activities, depending on the level, etc. The following are two examples of evaluation proposals, the first belonging to the part of the session devoted to Gaudí, and the second to the part devoted to Dalí. Please note that, although this sample is shown in English, the original template is in Catalan.

<p>A1 — After playing the video, students should decide whether the following statements are true or false:</p> <ol style="list-style-type: none"> 1. The most outstanding finding of the restoration of the Casa Batlló has to do with the staircases. (F) 2. The original color of the grilles and balconies was not black, but white. (T) 3. The walls of the façade are yellowish and not dark grey. (F) 4. The original color of the wood of the windows was white. (F) 5. The balconies resemble masks. (T) <p>B1 — After reading the text, choose the correct answer:</p> <ol style="list-style-type: none"> 1. Casa Batlló is located at number 43... (Passeig de Gràcia/ Park Güell/ Vila de Gràcia) 2. Gaudí... (built the house from scratch/ demolished the previous building/ reformed the previous building). 3. Mr. Josep Batlló... (worked side by side with Gaudí /granted full creative freedom to Gaudí / designed the model on which Gaudí would later work). 4. The building... (has an artistic value, but it's not actually functional/has an artistic value, but is also extremely functional/ has much more characteristics of past times than moderns). 5. The period when the Casa Batlló is located was known as The Bone of Contention because... (prominent architects were also reforming other houses that, at the time, were competing for the urban awards convened by the Barcelona City Council / the most prominent architecture students wanted to work with Gaudí and competitions were organized by the Barcelona City Council to assess which of them had the best qualifications to become an apprentice of the famous architect). 6. Other modernist houses that can be found near Casa Batlló are... (Casa Amatller, Casa Lleó Morera, Casa Vicens and Casa Güell / Casa Amatller, Casa Lleó Morera and Casa Mulleres / Casa Amatller, Casa Lleó Morera, Casa Mulleres and Casa Josefina Bonet).

Table 8. Assessment A1 & B1 (Gaudí session)

<p>A1, A2 — The activity consists of a cloud of words in Catalan that the students will have to drag and drop to describe each of the next items:</p> <ol style="list-style-type: none"> a. Iconic visual features of Dalí (barretina, mustache) b. His vision of art (surrealist, original, creative) c. Materials used in his art (diverse, unexpected) c. His vision of himself (confident, genius) d. The way he acted in public (eccentric) <p>The cloud of words will contain others mixed with the correct ones, like dull, traditional, monotonous, eyes, nose, photographic, sad, etc.)</p> <p>B1, B2 — Level B1 and B2 students will have to write (or reproduce verbally) a short text of between five and ten sentences in Catalan describing their first impressions of Dalí. Their proposal (in Catalan) must include the words: eccentric, unexpected, genius, diverse, surrealist, original, creative, mustache, barretina).</p>

Table 9. Assessment A1-A2 & B1-B2 (Dalí session)

The assessment activities proposed for working on Gaudí and Dalí respond to quite different conceptual approaches, and this difference is not accidental. The activities on Gaudí are designed to provide solid, objectifiable knowledge about his architecture,

while those on Dalí are intended to stimulate imagination, subjectivity and the construction of an abstract view of art.

In the case of Gaudí, the assessment is analytical and requires the literal interpretation of informative texts and videos. Its primary objective is to ensure that students have assimilated the fundamental elements of Gaudí's architectural legacy. This approach not only responds to a pedagogical purpose but is also in line with Gaudí's reserved and methodical character, as he was more focused on reflection than on the spectacle. Thus, the assessment aims to be coherent with the way Gaudí understood the world and architecture.

In contrast, the activities proposed for working on Dalí adopt a much more open and subjective approach. The aim is not for students to memorize specific data, but rather to invite them to describe their perception of Dalí, and the videos are not presented as sources of literal information, but as a stimulus to grasp the artist's personality. These activities also reflect the essence of the figure: a provocative, theatrical and unpredictable artist who turned his own image into a work of art. As a result, the activities on Dalí are more open and interpretative, thus being faithful to his non-conformist and disruptive spirit.

Discussion

The first steps of this project have been inspiring because of the possibilities offered by virtual reality for developing intercultural competence in the foreign language classroom and the significant impact this can have on learners' performance. This is in line with the observations of Brown (2007), Byram and Starkey (2002), and Sun (2013) on the importance of culture for foreign language proficiency. However, we have also been able to appreciate some challenges that we will have to address in the future and which we report on below.

In the selection of materials, it is essential to resort to open-access sources. Most of the materials come mainly from the media and public museums, intending to ensure the reliability, relevance, and pedagogical suitability of the content. It is also important to ensure that the audiovisual materials do not exceed a certain length in order to facilitate their integration in educational contexts. With regard to 3D objects, models available on the Sketchfab platform have been selected, prioritizing those identified as copyright-free or published under open licenses.

There is a need to balance technical feasibility and pedagogical aspirations when designing sessions. We want to provide the best possible environments for learners, but we must take into account the level of complexity that the available resources can handle and anticipate the technical difficulties that teachers may encounter in the classroom, so that these are not obstacles. However, the scheduled pilots have not yet been implemented, so it is currently not possible to assess the actual impact on students' acceptance and acquisition of intercultural competences. However, it is essential that educators can directly experience virtual reality and what it would be like to adopt it in their teaching systems. This approach enables users to gain insight into the didactic potential of the tool, while concurrently acknowledging its limitations. This feedback is crucial for the development of a coherent instructional design adapted to teaching and learning needs, especially in language training contexts, where interaction and contextualization play a key role. Moreover, the creation of the virtual environments foreseen in the sessions is still in progress; therefore, some functionalities might not be operational in the final environment, and it would be necessary to adapt part of the sessions in that case. Despite these challenges and limitations, we believe that the use of VR allows learners to interact with culture in a meaningful and motivating way, in realistic and multisensory contexts—which is also supported by the Council of Europe (2020) and Dooly and

López Vera (2024)—, and with heritage content such as that represented by Gaudi and Dalí in Catalan culture, a factor that is difficult to achieve in traditional classes.

As for the methodology applied, the standardization of the sessions by means of templates has enabled a flexible common framework for different levels and cultural contexts, and the approach by macro and sub-themes facilitates the adaptation for each level according to the degree of linguistic competence without compromising the cultural content.

Regarding the evaluation component, this constitutes a pivotal aspect of the proposal. It enables both the educator and students to ascertain the extent of their comprehension and assimilation of the cultural learning outcomes associated with each session. However, the question arises as to whether the assessment should be integrated within the virtual experience itself or presented as an external complement to be led by the teacher. It is acknowledged that both of these options are viable and have the potential to be complementary. On the one hand, the integration of assessment within the VR environment can promote a more immediate, autonomous, and contextualized response. On the other hand, external assessment guided by the teacher after the immersive experience can facilitate metacognitive reflection.

It should be noted that the teacher may want to integrate the virtual experience into a broader didactic unit with its own evaluation activities; hence, flexibility seems the most suitable approach. One could imagine two main situations: on the one hand, a scenario in which the virtual experience is already created and settings such as language level and the inclusion (or not) of evaluation activities are selected at the onset of the experience. This would require minimum technical expertise—just being able to activate the device and select the settings—as the experience would be created and the student would just participate in an off-the-shelf training activity. On the other hand, a situation in which the teacher uses an authoring tool to create or customize an existing experience to their needs. The IMMERSE project can cater to both situations, but it is now prioritizing the first situation, as the consultations with teachers have shown that most of them are not familiar with the technology and may view it as time-consuming.

In this regard, the integration of these immersive sessions in learning environments is considered feasible both in the classroom and as complementary activities that students can do at home. In a presential context, their implementation requires the availability of various HMD (head-mounted display) devices, a fact that can be a logistical limitation, subject to the conditions of the educational center. Nevertheless, the format of the sessions has been designed to guarantee flexibility that also allows its use from a computer, either inside or outside the classroom, as part of the students' autonomous work.

Finally, both the teachers and the bibliography consulted point to the importance of linking linguistic and cultural learning in foreign language training. Therefore, the IMMERSE proposal responds to a real need in the present educational context. However, according to the sources consulted, teaching time is limited and achieving a balance between linguistic and cultural content is a real challenge. The technical requirements, accurate didactic planning, and the adaptation of materials to the level and interests of the students are not easy for teachers to overcome, especially if they do not have the appropriate technical and training support. As Sun (2013) and Stockwell (2018) point out, educators must be provided with appropriate training and support to successfully implement intercultural and technology-enhanced approaches; otherwise, the integration of VR may become a barrier rather than an asset. Therefore, it is essential that educators have guidance and resources to implement these sessions effectively, which is also noted by Ramírez et al. (2018). It is also of utmost importance to optimize visual and graphic resources so that they can be easily adapted to the different linguistic levels of learners, favoring their application in the classroom, which is also a relevant support for teaching as it guarantees a coherent

intercultural experience that is efficiently adapted to the limited time available—a perspective that aligns with the identified benefits of interactive and visual materials for cultural learning (Dema and Moeller, 2012).

Conclusions

This article has presented the first stages of the IMMERSE project, which proposes an innovative methodology for integrating cultural learning into foreign language teaching through immersive virtual reality environments. Based on a solid conceptual framework and a participatory design process, templates and pilot sessions have been developed that reflect a realistic and flexible implementation of culture in the classroom, following the consulted teachers' advice and the literature review's evidence of the need to include intercultural competence in foreign language curricula.

The work conducted so far enables us to conclude that VR can not only be useful in increasing students' motivation and engagement (and consequently improving their language skills) as observed by Ece, Balkan and DİNÇER (2023); Gao et al., 2021; Knutzen et al., 2025 and Özgün and Sadik (2023), but also enables a dynamic and contextualized representation of cultural heritage, overcoming the limitations of traditional methods. Nevertheless, technical, pedagogical, and logistical challenges, as mentioned in the previous section, need to be addressed in the next phases of the project.

It is true that authors such as Dooly and López Vera (2023) appreciate a lower linguistic accuracy in students who learn a language through virtual reality, but our proposal does not intend to omit the human factor that the teacher represents—in line with Berti (2021) and Tafazoli (2024)—, it simply serves as a complement to possible lessons on cultural topics. Considering that, from IMMERSE's perspective, linguistic content is acquired and consolidated through the lessons taught by the teacher. Therefore, the project manages to overcome this disadvantage of VR. When it comes to the observations of Özgün and Sadik (2023) and Ece, Balkan and DİNÇER (2023) on the discomfort that can be caused by an excessive use of VR, we again propose a tool for the teacher to use in class in a flexible and personalized way, which does not aim to place the entire weight of the class on the platform but to offer this option in a specific space of the session, the level of prominence or duration of which will always be in the hands of the teacher.

In future stages, it will be essential to evaluate the effectiveness of the materials through pilots with different students and teachers, as well as to analyze the impact on students' linguistic and intercultural competence.

Ultimately, IMMERSE contributes to rethinking the place of culture in language teaching and to exploring the potential of emerging technologies as catalysts for meaningful learning.

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Bibliographic references

- Akdere, M., Acheson, K., & Jiang, Y. (2021). An examination of the effectiveness of virtual reality technology for intercultural competence development. *International Journal of Intercultural Relations*, 82, 109-120. <https://doi.org/10.1016/j.ijintrel.2021.03.009>
- Barrera Luna, R. (2013). El concepto de la cultura: Definiciones, debates y usos sociales. *Revista de Claseshistoria*. Publicación digital de Historia y Ciencias Sociales, 343.
- Berti, M. (2021). The Unexplored Potential of Virtual Reality for Cultural Learning. *The EuroCALL Review*, 29(1), 60-67. <https://doi.org/10.4995/eurocall.2021.12809>
- Brown, H. D. (2007). *Principles of language learning and teaching*. New York, NY: Pearson Education.
- Buragohain, D., Meng, Y., Deng, C., Li, Q., & Chaudhary, S. (2024). Digitalizing cultural heritage through metaverse applications: Challenges, opportunities, and strategies. *Heritage Science*, 12(295). <https://doi.org/10.1186/s40494-024-01403-1>
- Byram, M., Gribkova, B., & Starkey, H. (2002). *Developing the Intercultural Dimension in Language Teaching: A Practical Introduction for Teachers* [Electronic Version]. <https://rm.coe.int/16802fc1c3>
- Council of Europe. (2020). *Common European framework of reference for languages: Learning, teaching, assessment. Companion volume*. Strasbourg: Council of Europe Publishing. www.coe.int/lang-cefr
- du Cros, H., & McKercher, B. (2020). *Cultural Tourism* (3rd ed.). Routledge. <https://doi.org/10.4324/9780429277498>
- Dema, O., & Moeller, A. K. (2012). Teaching culture in the 21st century language classroom. *Touch the World: Selected Papers from the 2012 Central States Conference on the Teaching of Foreign Languages*, ed. Tatiana Sildus (Eau Claire, WI: Crown Prints), 75-91. <https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1176&context=teachlearnfacpub>
- Dooly, M., & López Vera, M. (2024). La realidad virtual (RV) en el aula de la lengua inglesa: un estudio etnográfico. *Didáctica. Lengua y Literatura*, 36, 201-213. <https://doi.org/10.5209/dill.88767>
- Ece, Ç., Balkan, Ö., & Dincer, N. (2023). Immersive virtual reality in tertiary level EFL education: A systematic review of recent applications. *Innovational Research in English Language Teaching*, 4(2), 59-77. <https://doi.org/10.29329/irelt.2023.623.6>
- Hernández Campoy, J. M., & Scheu, D. (2013). La competencia sociocultural en la enseñanza de lenguas extranjeras. *Cuadernos de Filología Inglesa*, 22, 45-60. <https://revistas.um.es/cfi/article/view/69431>
- Knutzen, K.; Rothenberger, L., Tribusean, I., & Xu, Yi. (2025). Using Social Virtual Reality in Teaching Intercultural Communication. *Technology, Knowledge and Learning*, 30, 1167-1187. <https://doi.org/10.1007/s10758-025-09822-0>
- Gao, L., Wan, B., Liu, G., Xie, G., Huang, J., & Meng, G. (2021). Investigating the Effectiveness of Virtual Reality for Culture Learning. *International Journal of Human-Computer Interaction*, 37(18), 1771-1781, DOI: 10.1080/10447318.2021.1913858
- Özgün, O., & Sadık, O. (2023). Implementation of VR technologies in language learning settings: A systematic literature review. *Educational Policy Analysis and Strategic Research*, 18(4), 32-47. <https://doi.org/10.29329/epasr.2023.631.2>
- Páez, D., & Zubieta, E. (2004). *Cultura y psicología social*. In D. Páez, I. Fernández, S. Ubiillos, & E. Zubieta (Eds.), *Psicología social, cultura y educación*, 45-72. Pearson Prentice Hall.
- Ramírez, L., Peña, M., & Mórolo, V. (2018). Culture in foreign language teaching: A review. *Fundación Universitaria Colombo-Unicolombo*, 9, 49-55.

Stockwell, E. (2018). Teaching culture in foreign language classes. *Foreign Language Education Research*, 22, 11-23.

Sun, L. (2013). Culture teaching in foreign language teaching. *Theory and Practice in Language Studies*, 3(2), 371-375.

Tafazoli, D. (2024). From virtual reality to cultural reality: integration of virtual reality into teaching culture in foreign language education. *Journal for Multicultural Education*, 18(12), 6-24. <https://doi.org/10.1108/JME-12-2023-0135>

UNESCO. (1999). UNESCO and Nordic World Heritage Office. UNESCO.

UNESCO. (2003). Intangible cultural heritage domains. UNESCO. ich.unesco.org/doc/src/01857-EN.pdf

UNESCO. (nd)¹. What is Intangible Cultural Heritage? <https://ich.unesco.org/en/what-is-intangible-heritage-00003>

UNESCO. (nd)². Text of the Convention for the Safeguarding of the Intangible Cultural Heritage. Text of the Convention for the Safeguarding of the Intangible Cultural Heritage - intangible heritage - Culture Sector - UNESCO

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