WILOS360 - IMMERSIVE REALITY IN EDUCATION

BEST PRACTICE REPORT

Immersive Reality (IR) applications in Spain

Introduction

Spain has experienced a significant increase in the development and implementation of Immersive Reality (IR) technologies in recent years. Virtual Reality (VR), Augmented Reality (AR), and Mixed Reality (MR) are progressively transforming the way institutions, companies, and educational organisations approach communication, learning, cultural dissemination, and professional training.

The Spanish commitment to digital innovation has encouraged universities, museums, research centres, and technology companies to explore immersive solutions in areas such as cultural heritage, tourism, healthcare, engineering, and education. These technologies are being used not only to improve user engagement, but also to create more accessible, interactive, and meaningful experiences.

In the educational field, immersive technologies are opening new possibilities for experiential learning by allowing students to interact with virtual environments, simulations, and digital reconstructions that enhance motivation and understanding. At the same time, Spanish cultural institutions are increasingly using IR applications to preserve and promote historical heritage through virtual visits and digital storytelling.

Supported by European initiatives and national digital transformation strategies, Spain continues to strengthen its position as a country interested in integrating immersive technologies into both education and society.

Best Practices Immersive Reality (IR) applications in Greece

Tourism and Cultural Heritage

Prado Museum Virtual Experiences The Museo del Prado has incorporated digital and immersive experiences to enhance access to artworks and exhibitions. Through virtual tours and interactive digital resources, visitors can explore masterpieces remotely while engaging with historical and artistic content in a more dynamic way.

Sagrada Familia AR Applications Augmented Reality applications connected to the Sagrada Familia in Barcelona provide visitors with interactive architectural visualisations and historical explanations, enriching the tourism and educational experience.

Archaeological Museums and Digital Reconstruction Projects Several Spanish archaeological museums are implementing VR and AR technologies to digitally reconstruct ancient sites and historical artefacts. These projects help visitors understand historical contexts through immersive storytelling and interactive learning.

Education

Universitat de Barcelona – Virtual Learning Environments The Universitat de Barcelona has integrated Virtual Reality into teacher training and educational research projects. Students can participate in immersive simulations designed to improve collaborative learning, digital competence, and experiential education.

Polytechnic University of Valencia – VR and Engineering Education The Universitat Politècnica de València has implemented VR laboratories and immersive simulations for engineering and architecture students, allowing them to visualise and interact with complex structures and technical processes.

Immersive Language Learning Experiences Several educational institutions in Spain are experimenting with VR for language learning, creating immersive scenarios that allow students to practise communication skills in realistic virtual environments.

Erasmus+ and European Digital Education Projects Spanish schools and organisations actively participate in Erasmus+ projects focused on digital innovation and immersive education. These initiatives promote the integration of AR and VR into classrooms and encourage teacher training in digital methodologies.

Healthcare

Virtual Reality for Psychological Therapy Hospitals and mental health centres in Spain are increasingly using VR applications for anxiety management, phobia treatment, and stress reduction therapies. Immersive environments help patients experience controlled exposure in therapeutic contexts.

VR in Medical Training Spanish universities and healthcare institutions are using VR simulations to train medical students and healthcare professionals in surgical procedures and emergency response scenarios.

Immersive technologies are also being applied in rehabilitation programmes to support physical recovery and cognitive stimulation for patients recovering from injuries or neurological conditions.

Architecture and Engineering

Immersive Architectural Visualisation Spanish architecture firms use VR technology to create interactive walkthroughs of buildings and urban projects before construction. These simulations improve communication between architects, engineers, and clients.

Smart Cities and Digital Twin Projects Several Spanish cities are exploring digital twin technologies and immersive simulations to support urban planning, sustainability, and infrastructure management.

Entertainment and Media

Spanish VR Gaming Industry Spain has a growing VR gaming sector, with independent studios developing immersive experiences inspired by Spanish culture, history, and fantasy environments.

Immersive Journalism and Media Spanish media organisations have experimented with immersive journalism projects that use 360-degree video and VR storytelling to create more engaging news experiences.

Best Practices in School Education

The use of Immersive Reality (IR) technologies in Spanish schools is gradually expanding as educational institutions seek more innovative and student-centred teaching methodologies. Virtual Reality (VR) and Augmented Reality (AR) tools are increasingly being incorporated into classroom activities to support experiential learning and improve student engagement.

One of the most common educational applications involves immersive virtual visits to museums, historical monuments, and scientific environments. Through these experiences, students can explore locations and concepts that would otherwise be inaccessible, making learning more visual, interactive, and memorable.

Spanish schools are also implementing immersive technologies in STEM education, where VR simulations and AR visualisations help students understand abstract scientific and mathematical concepts through experimentation and observation. In language learning contexts, immersive

environments provide opportunities for students to practise communication skills in realistic situations that encourage participation and confidence.

Several schools and educational organisations participate in Erasmus+ and European digital education projects focused on innovation, inclusion, and digital competence development. These initiatives promote teacher training and the integration of immersive methodologies into everyday educational practice.

In addition, universities such as the University of Jaén and the Universitat Politècnica de València contribute to research and innovation in immersive learning, supporting collaboration between schools, higher education institutions, and technology developers.

Although challenges related to infrastructure, funding, and teacher preparation still exist, particularly in rural areas, immersive technologies are increasingly recognised in Spain as valuable tools for improving educational quality and preparing students for the demands of a digital society.

Conclusion

Immersive Reality (IR) technologies are progressively becoming part of Spain's educational, cultural, and technological landscape. The implementation of Virtual Reality (VR), Augmented Reality (AR), and Mixed Reality (MR) applications demonstrates how digital innovation can enhance learning processes, cultural dissemination, healthcare practices, and professional training.

Spain has developed a growing ecosystem of universities, museums, schools, and companies that actively promote immersive experiences through research projects, educational initiatives, and digital heritage preservation programmes. Projects connected to institutions such as the University of Jaén, the Alhambra, and major Spanish universities reflect the country's increasing interest in combining technological innovation with education and culture.

Although the integration of immersive technologies into schools is still evolving, current initiatives reveal considerable potential for future development. Continued investment in teacher training, digital infrastructure, and accessibility will be essential to ensure wider implementation across all educational contexts.

Overall, Spain continues to advance towards a more innovative and digitally connected educational environment, where immersive technologies can contribute significantly to more engaging, inclusive, and meaningful learning experiences.

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