Project title: Nature Classroom Reintegrating Nature into Education through the Use of Artificial Intelligence and Mixed Reality in Urban Environments.

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Research group GREDU

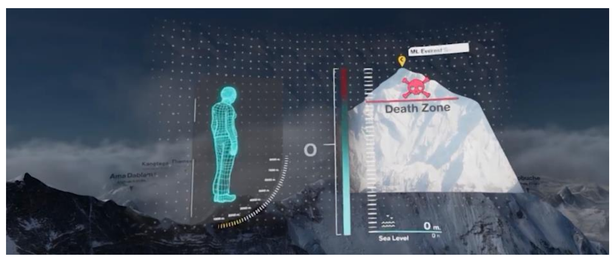
01 *Introduction*

This research project addresses the need to reconnect students in compulsory education with the natural environment through immersive technologies, at a time when urban education increasingly distances itself from nature-based settings (Louv, 2008).

The core focus revolves around how emerging tools such as **Artificial Intelligence (AI) and Mixed Reality (MR)** can foster a **more sustainable, meaningful, and emotionally connected learning experience with nature**, particularly within urban school environments.

02 *Methodology*

- **Mixed-method design**
- **Quantitative:** surveys with students (12–17 years), teachers and families for their perceptions, attitudes and impact of nature.
- **Qualitative:** Interviews with experts, environmental organizations and immersive technology specialists.
- **In-situ observations** of teaching practices with VR in urban schools, focusing on student interactions, well-being, and the promotion of environmental and climate awareness
- **Tools**: IA, VR & MR, NVivo for data processing and cross-analysis
- **Duration**: 3-5 years (2024/29)



03 *Results*

- Increase in students emotional and cognitive well-being by promoting regular and sustained contact with nature.
- Improvement of ecological and social awareness.
- Enhanced educational inclusion through immersive environments adapted for students with special educational needs (NESE).
- Stimulation of curiosity and respect for nature through digital tools, AI, and mixed reality.
- Identification of best practices in rural schools that can be transferred to urban contexts.

04 *Discussion*

Nature within education cannot be just a one-off activity: it must be **structural and part of the curriculum.**

Immersive technologies are a bridge in urban environments lacking green spaces, but they can never replace physical contact with nature.

Teacher training and collaboration between schools, universities, and environmental organizations are required to support the proper integration of nature into education.

05 *Conclusion*

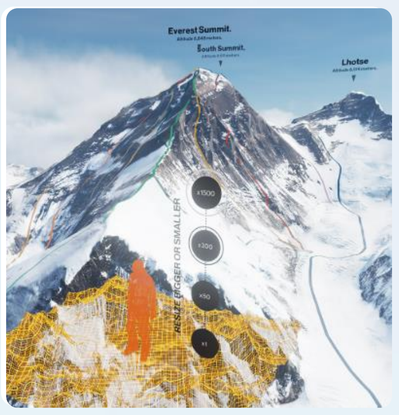
- **The integration of nature and technology can redefine the classroom, making it more inclusive and sustainable.**
- **Hybrid models (real nature + digital immersion) can contribute to achieving SDGs 4, 11, and 13.**
- **It is necessary to develop replicable strategies that transform formal education.**

Implications & Applications

Development of replicable educational programs in urban centers. Partnerships with environmental organizations for shared experiences. Immersive digital resources to adapt content for students with special needs. Transferability of the model to other territories and educational stages.

The Quest for Further Knowledge

How to scale this model at the national and international level?
What long-term impacts will it have on academic performance and climate awareness?
How to integrate educational policies that ensure the structural presence of nature?



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