

# A STUDY OF STUDENTS' SPATIAL ABILITIES WITH THE USE OF VIRTUAL ENVIRONMENTS

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Children move, interact, perceive, recall and represent the natural world space and its attributes. (Osberg 1997) The geometrical study of space leads to its reference systems, namely the Euclidean, topological and projective. An interesting research question is the way primary school children perceive and exploit these, intentionally or unintentionally.

The understanding of space and its attributes, the relations and rules govern them, allow children not only to act, but also to conceptualize complicate concepts allowing them to adapt and face similar spaces and learning situations, to develop spatial skills (Wilson 1997,. Doorman, L.M., Kooij, H v.d. :2001)

The present research concerns the study of spatial skills of children of ages 10 –12 years, with the contribution of three-dimensional synthetic environments, implemented by Virtual Reality (VR) technologies.

The virtual environment was designed in order to investigate:

- The nature of internal representations of students concerning space orientation, recognition and handling of two and three dimensional geometrical objects viewed from different viewpoints, following specific verbal instructions
- Language used by students to describe spatial relations in the virtual environment
- The eventual distance between spatial information acquired by exploring a geometric problem in the virtual environment and the one acquired by exploring a paper / pencil environment.

## References

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