Augmented reality through the lens of prospective teachers

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Augmented reality

- Visual technologies that combine real-world sight experience with computer-generated visual information (Aukstakalnis 2017).
- It's characterised by anchoring of virtual model into the real world (Azuma 1997).
- The virtual model is retrieved from the program's database running by the operating device (Hnatová 2021).
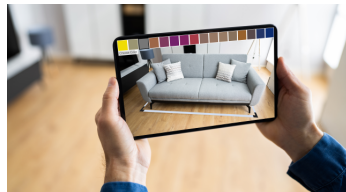
Augmented reality in education

- AR may motivate and make pupils engaged in learning (Ibanez et al. 2015; Chang & Hwang 2018)

- AR may increase pupils' attention while being on task (Bressler & Bodzin 2013; Gün & Atasoy 2017)

- AR may promote pupils' mental visualisation (Lin et al. 2013; Hnatová 2022)

- AR may boost pupils' understanding of geometric shapes and their attributes (Cantürk Günhan 2014; Gunčaga & Žilková 2019; Ibili et al. 2019).

- AR can be seen as an enactive model in digital form (Prídavková 2022).

Feasibility study

- *What are prospective teachers' experiences with AR?*
- *What are their opinions on AR?*
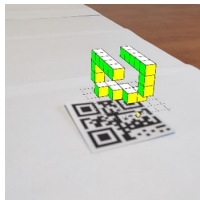
- Android - PC - Data projector
- Frontal instruction $\longrightarrow$ Group work

Results

Strengths	Weaknesses
Interesting for pupils	No real manipulation
Increased attention	Tendency to slide off of task
Visualisation development	Decline of cognitive load
Teaching ICT	Weak technical support
Possible to use at home	Not for all

The results complement previously carried studies by Hnatová, Hnat (2019) and Hnatová (2021).

Conclusion

- Digital technologies don't promote learning alone (Aukstakalnis 2017).
- Digital technologies are tools helping teachers be more effective (Toyoma 2015).
- Integration of digital technologies into the educational process is needed (Neumajer 2014; Müller, Begović, Baumgärtner 2018).
- Thorough analysis of learning objectives must be carried out before implementing AR into the educational process.

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