

# Fostering competencies of pre-service teachers for the planning, design and evaluation of teaching offers with Augmented and Virtual Reality

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## I. ABSTRACT

Media formats linked to the concept of Extended Reality (XR) have started to find their way into many areas of professional and private life. Especially Augmented Reality (AR) - the projection of computer-generated content onto the users real world perception [8] and Virtual Reality (VR) - immersive, interactive, multi-sensory, viewer-centered, three-dimensional computer generated environments (cf. [3]) - offer a wide range of new possibilities compared to other media formats. While the use of AR and VR is already quite popular in the gaming and industrial sector, applications like *Google Expeditions* or *Anatomy4D* have also shown their great potential for scholastic learning. Studies point to potential advantages like enabling the visualization and manipulation of complex or inaccessible topics, or an enhanced possibility for exploration (cf. [1] [5]). To allow teachers to make use of these advantages, it is necessary to foster corresponding competencies for an appropriate use of such formats for teaching and learning (cf. [2]). For this purpose, a didactical concept was developed and implemented in the school-pedagogical training of pre-service teachers at the University of Wuerzburg, based on the research method of theory- and practice-oriented development and evaluation of concepts for media pedagogy (cf. [6]). This included the identification of suitable theoretical approaches, like the *Learning by Design-Approach* (cf. [4]) and *Action-oriented Teaching and Learning* (cf. [7]), and the derivation of didactical principles. The established concept is being evaluated with a mixed-methods approach; including questionnaires, focus-group interviews and participant observations.

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