

Standards for science communication in extended and virtual reality: a model for XR/VR based on London Charter and Seville Principles

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Abstract-

Videos featuring research results, laboratory tutorials, and online webinars are fundamental tools for disseminating science and boosting scientific impact. However, extended reality (XR) video technologies, which include virtual reality (VR), represent new challenges for scientists and science communicators. XR and VR can enhance, bend, or distort the reality surrounding scientific facts. The London Charter and Seville Principles are standards for computer-based visualization and reconstruction in a virtual reproduction of heritage sites and research in domains such as archaeology. Here, we develop a similar set of standards for the representation of scientific results in XR and VR and clarify the use of implicit XR and VR elements such as storytelling, setting, agency, interactivity, and other factors. Finally, the authors propose a framework XR/VR Model of Science Representation and Communication, derived from the context and other frameworks for representing information in virtual environments.

Index Terms- Science and media; Science communication; theory and models; Science education

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