Immersive Media

OTHER MEDIA

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When used to describe media, immersion is the replacement of physical reality with virtual reality (Cummings & Bailenson, 2016), and educational media have varying levels of immersion (Figure 1). Immersive learning is advantageous for simulating situations that are physically impossible, counterproductive, too dangerous, or too expensive in the real world (Bailenson, 2018; Johnson-Glenberg, 2019; Makransky et al., 2020).
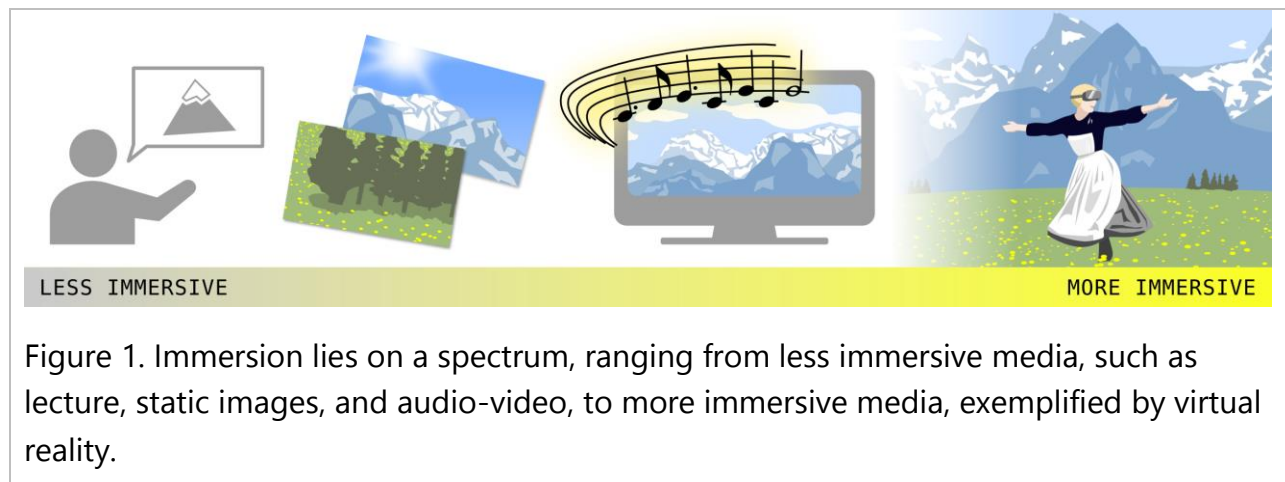

Figure 1. Immersion lies on a spectrum, ranging from less immersive media, such as lecture, static images, and audio-video, to more immersive media, exemplified by virtual reality.

Augmented reality is another form of immersive media that deliberately keeps aspects of the physical reality to serve as points of interaction with virtual reality. A potential application of augmented reality in learning is to present information in real-time during a laboratory experiment (Ayers & Sweller, 2021).

The unique qualities of novel, immersive virtual environments, combined with multimedia design principles, is an approach to improve learning, summarized as the **immersion principle** (Makransky, 2021).

Advantages and Disadvantages of the Immersion Principle

A highly immersive form of media is virtual reality, which has unique strengths as an educational medium and may be fun to experience (Makransky, 2021). Indeed, highly immersive environments have several applications for learning, such as integrating visual

and spatial information, psychomotor skills (head movements for visual scanning), and affective skills (controlling emotional response in stressful situations) (Jensen & Konradsen, 2018).

However, virtual reality is not necessarily more effective than less immersive forms of learning. For declarative knowledge, the effects of immersive simulation were not significantly different than those of learning from desktop simulation or booklet (Makransky, Borre-Gude, & Mayer, 2019) or lecture-based learning (Snelson & Hsu, 2020; Webster, 2016). Some studies even demonstrate that immersive simulation was less effective for learning than conventional media (Makransky, Terkildsen, & Mayer, 2019; Moreno & Mayer, 2004; Parong & Mayer, 2018).

Virtual reality may be counterproductive to learning because of cybersickness, technological malfunction, or the distractions of the immersive experience that detract from the learning tasks (Jensen & Konradsen, 2018). Other considerations before implementing virtual reality in the classroom are the financial cost for students and instructors to access equipment and software as well as the ease of which instructors are able to program virtual environments.

Thus, immersive media has advantages for learning but also has limitations, and similar learning outcomes may be accomplished with media that are less immersive.

Summary

- Currently, there is no convincing evidence to relate the extent of immersion to better learning outcomes.

Media Attributions

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