

# Glossary of Terms Related to Immersive Learning

## Forms of Immersion

**Sensory Immersion** The experience of having your senses mostly or totally surrounded by a three-dimensional “view” of a virtual world. For example a head-mounted display (HMD) or a planetarium dome shows you the virtual environment in (almost) any direction you look. A good pair of stereo headphones can immerse your hearing in an unreal soundscape.

**Psychological Immersion** The mental state of being completely absorbed or engaged with something. Because psychological immersion is a state of mind, it could be brought about by a variety of situations (such as reading a book or watching a movie).

**Immersive Media** Media that use sensory immersion to induce psychological immersion in the viewer or participant. These include Virtual Reality (VR), Augmented Reality (AR), all manner of Mixed Reality (MR), and to a lesser extent other large-format media such as movie theaters or planetariums.

**Virtual Environment (VE)** The digital world which the user occupies. For example, a person wearing an HMD will see the VE all around him or her, while a user in a MUSE or a single-user VR will see his/her avatar at a specific place in the VE. The term does not apply to any mixed or augmented reality; a virtual environment is digital and takes the user (figuratively) somewhere else.

**Multi-user Virtual Environment (MUSE)** A virtual world accessed by one or more people, usually many people. Each person is represented by a (usually) humanoid character that s/he controls (an avatar). Technically, MUSES are not immersive media, because they are usually accessed through a standard computer or mobile interface. However, they achieve many of the same psychological effects.

**Virtual Presence (Place Illusion)** A particular form of psychological immersion, the feeling that you are at a location in the virtual world. For example, using an head-mounted display to see a virtual room in every direction you look, makes

you feel like you are in that room. MUVES achieve a similar form of presence, though the user's emotional investment in their avatar.

**Actional Immersion** Empowering the participant in an experience to initiate actions that have novel, intriguing consequences. For example, when a baby is learning to walk, the degree of concentration this activity creates in the child is extraordinary. Discovering new capabilities to shape one's environment is highly motivating and sharply focuses attention.

**Symbolic/Narrative Immersion** Triggering powerful semantic associations via the content of an experience. As an illustration, reading a horror novel at midnight in a strange house builds a mounting sense of terror, even though one's physical context is unchanging and rationally safe. Narrative is an important motivational and intellectual component of all forms of learning. Invoking intellectual, emotional, and normative archetypes deepens the experience by imposing a complex overlay of associative mental models.

## Interfaces

**Augmented Reality** A form of mixed reality: Real world situations enhanced for learning by overlays with virtual information and experiences, presented on mobile devices (e.g., looking at a statue and seeing history about the person superimposed through the camera view of a tablet).

**Haptics** Using touch and pressure in a sensory experience (e.g., learning surgery on a virtual patient with sensory feedback on the incisions you make).

**Tangible Interfaces** A form of mixed reality: Interactive experiences manipulating objects that have both real and virtual components (e.g., manipulating physical blocks that, as you move them around, provide virtual overlays about geometry).

## Cognitive Science

**Situated Learning** "Situated" learning takes place in the same or a similar context to that in which it is later applied, and the setting itself fosters tacit skills through experience and modeling. For example, in a medical internship, both the configuration and the coordinated team activities in a hospital surgical operating room provide embedded knowledge.

**Transfer** Transfer is the application of knowledge learned in one situation to another situation, demonstrated if instruction on a learning task leads to improved performance on a transfer task, typically a skilled performance in a real-world setting. For example, statistical reasoning learned in a classroom can potentially aid with purchasing insurance, or with gambling.

**Plan/Act/Reflect (PAR)** Students first prepare for an experience by doing something they want to master, then they attempt that performance, and finally they assess what went well, what did not, why, and what they need to learn in order to execute a more successful repetition of the cycle.

**Embodied Cognition** An instructional strategy that posits retrieving a concept from memory and reasoning about it is enhanced by creating a mental perceptual simulation of it.