

Immersive Learning Environments - theory and research instruments

Look around you.

Clearly, you are immersed in the space where you are reading this. You are there. Perhaps you are in a subway carriage on your way home. Perhaps you are comfortably sitting at your work desk. Perhaps you are riding a dragon in a virtual world and you came across this text on a billboard. Perhaps you are listening to it read aloud by a virtual assistant. Perhaps your eyes are closed as you listen to this in a text-to-speech e-reader app, if that is the case, feel the couch you are sitting in, feel the bed you are lying on. You are present there. This is system immersion.

But where were you before? Were you really “there”? Or did another task at hand draw your entire attention, to the point you forgot your surroundings? Perhaps you were playing a mobile game while listening to this and forgot you were in that subway carriage - if that is the case, check how many stops before you need to leave. And mind the gap. Perhaps you were so engrossed in your work that you didn’t notice that dusk fell and it is now dark outside. Perhaps that dragon you were riding was bucking so much that you crashed into this virtual billboard, unaware of your location. Perhaps you were strategizing, adrift in tactical planning, hesitating, considering what to do for dinner or how to address your boss for that raise. All of this is agency immersion.

What if you were not reading this, but had just entered a lecture hall? You chose a seat, not too far back, not too close to the front. The speaker’s location and stance led you to understand their role, and know what was bound to happen - a speech. You also wonder what will happen next, and following these events, you did not realize how much time had passed, or neglected to notice your physical smartphone was buzzing: you were experiencing narrative immersion.

These three dimensions (system, agency, narrative) are the current theoretical grounding of the phenomenon of immersion - as shown by Nilsson et al. [1]. They used the term “challenge” for one of these dimensions. We believe “agency” better expresses this concept, in its current sense of the dynamic interplay between the self and the environment that leads to emergence of the universe of possibilities for action [2].

The consideration of these dimensions should be at the core of TC-ILE efforts, avoiding technocentric views of immersion as based solely on features of the physical system. To do this we need to describe and characterize what is going on - or planned - along each of these dimensions. We have frameworks to understand Presence and thus the system immersion dimension, notably Mel Slater’s lifelong work [3]. We also have frameworks to understand Narrative immersion [4], and several perspectives on Agency, including the ongoing debate on its relationship with flow theory [5]. We have previously employed this holistic approach to analyze the published research in the field, and it enabled a clear vision of clusters and voids of contributions (Fig. 1).

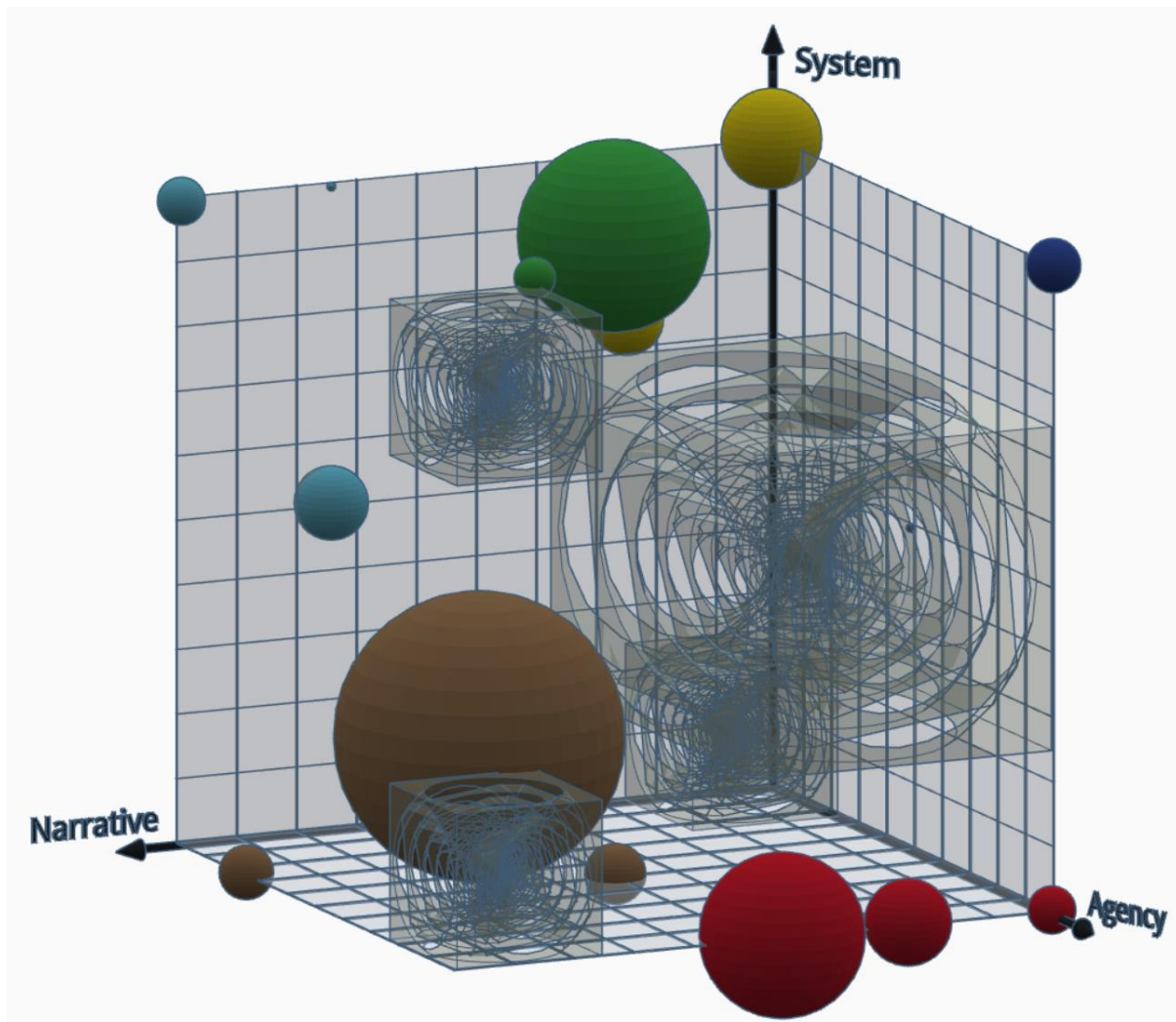


Figure 1: Using the three conceptual dimensions of immersion, adapted [6].

Characterizing the immersion phenomenon, or at least aspects that are relevant to it, is only the first step. To understand immersive learning, we need to consider that second term: LEARNING. Rather than expect it to magically result from immersion, we must strive to avoid the pitfalls of previous generations of educational technology research. Most notably, the pitfall of attempting to identify outcomes (consequences, results, impacts) from badly-described educational settings, and then compare those outcomes with those from other badly-described educational settings. Immersive learning needs to account for what is taking place objectively (the use of immersive environments) but also for the tactical and strategic dimensions involved: the educational practices and strategies. We have created this three-level framework of analysis and used it to provide a current map of research, which we called the Immersive Learning Brain [7]. If more researchers use these techniques, then we can envision a clearer picture of immersive learning emerging - leading to effective and enlightened educational interventions.

The TC-ILE and the Immersive Learning Research Network (iLRN) have been partnering to create this global community awareness, raising solid theoretical understanding and quality practices, an initiative known as the Immersive Learning Knowledge Tree [8], a conceptual framework for building a common and agreed upon understanding of immersive learning, as well as the means for mapping knowledge, tools and services in the field, combining both

scholarly and practical knowledge. It is only through a holistic understanding of the term “immersion” and “immersive learning” that the Knowledge Tree initiative can be realized.

So the time is ripe for the research and practice community on immersive learning to create rich instruments to plan, record, and analyze immersive learning in the entirety of the phenomenon.

References

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