

# Virtual Reality and Unlearning: Empowering Transformation

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**Abstract.** Educational transformation requires that people volitionally change from a set of behavioral practices buttressed by organizational supports, policies, and incentives to a markedly different set of practices that requires an altered organizational context accompanied by a shift in assumptions, beliefs, and values at both the individual and institutional levels. Some research in immersive learning, particularly in virtual reality, shows promise of accomplishing the unlearning of deeply held beliefs, values, and attitudes by influencing the mind/brain cognitively and affectively, intrapersonally and interpersonally.

**Keywords.** Virtual Reality, immersive learning, unlearning

## 1 The Challenge of Transformational Change

A major challenge in educational improvement is inducing people to volitionally change from a current set of behavioral practices buttressed by organizational supports, policies, and incentives to a markedly different, transformational set of practices that requires an altered organizational context—accompanied by a shift in assumptions, beliefs, and values at both the individual and institutional levels. Illustrative examples of this frequently encountered situation include:

- A teacher/professor transforming instructional practices from presentation/assimilation to active, collaborative learning by students (e.g., using the case method of teaching, or using project-based learning)
- In making the transition from classroom to distance teaching, an instructor transforming from teaching practices effective in the face-to-face classroom to instead using teaching practices effective in online learning.
- An educational organization transforming from credentials certified by seat-time and standardized tests to credentials certified by proficiency on competency-based measures, irrespective of student time taken to accomplish this.
- An educational organization that (perhaps unconsciously) discriminates against certain types of people (e.g., marginalized populations) transforming its individual and institutional behaviors to actively promote diversity and equity.

Of course, many other illustrations could be given. These examples have in common transformational shifts (i.e., second-order, double-loop, deep) based on a reconceptualization of assumptions, beliefs, and values [1]. Often, this means that individuals and organizations shift to behaviors that are more time-consuming, expensive, and difficult, but more effective based on a new frame of reference. At times, this form of change also involves difficult situations (i.e., wicked, intractable) with multiple stakeholders, competing perspectives, and an absence of resolutions that guarantee the aspirational transformation.

## 2 The Strategy of “Unlearning”

My interest centers on enabling volitional individual and organizational change (i.e., not based solely on compliance with institutional mandates) that is relatively swift. In a literature review, I found descriptions of individual and organizational unlearning that were primarily cognitive strategies for accomplishing this type of transformation. People who term this “unlearning” typically view that term as a special stage of the learning process, a form of reverse-learning. Some of these approaches are about altering mental models, others involve “management” of the change process, and still others are based on strategies from knowledge diffusion. I am unconvinced by this formulation of unlearning, because in decades of professional experience I’ve seldom seen strategies that rely on rational processing of information to be effective in creating sustainable change that is truly transformational.

Instead, my experience is that a powerful, negative emotional overlay (on intrapersonal and interpersonal dimensions that are not necessarily conscious) usually undermines rational, cognitive drivers to the point that transformation is, at best, temporarily and partially accomplished before reversion to standard practices and policies. This response to change is documented in a variety of contexts; for example, Kuhn discussed how emotions can undercut scientific rationality in his book, *The Structure of Scientific Revolutions* [2]. I seek to foster “unlearning” that can overcome or undercut this emotional resistance. My hypothesis is that the affective response is based on a perceived threat to personal (and organizational) identity. By this, I don’t mean simply what people will intellectually describe when asked, “Who are you?” I include deep, unconscious assumptions, beliefs, and values distributed throughout the mind/brain, including preconscious processing in the limbic system.

Thus, I am devising and studying strategies for unlearning that involve volitionally letting go of a deeply held, emotionally valued identity, in the service of making a transformational change to a different set of behaviors prompted by altered assumptions, beliefs, and values. However, describing this as a shift from one well-defined state to another is too simplistic. I am influenced by the arguments of Brook et al [1] that unlearning may be moving from knowing to not-knowing and from action to non-action, as a transitional step towards developing a transformed form of knowing and acting. In

such a process, support for an “intermediate” identity that is based on not-knowing and not-acting as a form of exploratory deliberation may be valuable, so that unlearning does not fail through existential crisis when one’s new identity is unclear.

### **3 The Opportunity of Virtual Reality Experiences that Promote Unlearning**

I hypothesize that this type of unlearning would be based on a series of very powerful experiences that influence the mind/brain cognitively and affectively, intrapersonally and interpersonally. As a researcher of immersive learning (i.e., virtual, augmented, and mixed realities), I believe these media hold promise of what they might accomplish [3]. Specifically, learning experiences designed to teach complex knowledge and sophisticated skills are often based on “guided social constructivist” theories of learning. In this approach, learning involves mastering authentic tasks in personally relevant, realistic situations. Meaning is imposed by the individual rather than existing in the world independently, so people construct new knowledge and understandings based on what they already know and believe, which is shaped by their developmental level, their prior experiences, and their sociocultural background and context [4]. Instruction can foster learning by providing rich, loosely structured experiences and guidance (such as apprenticeships, coaching, and mentoring) that encourage meaning-making without imposing a fixed set of knowledge and skills. This type of learning is usually social and situated; students build personal interpretations of reality based on experiences and interactions with others in a rich authentic context [5].

Immersive media have affordances that enhance this type of learning. Psychological immersion is the mental state of being completely absorbed or engaged with something. For example, a well-designed game in a MUVE draws viewers into the world portrayed on the screen, and they feel caught up in that virtual environment. The use of narrative and symbolism creates credible, engaging situations [6]; each participant influences what happens through their actions and can interact with others. Head-mounted or room-sized displays can create sensory immersion to deepen the effect of psychological immersion, as well as induce virtual presence (place illusion), the feeling that you are at a location in the virtual world [7].

In particular, the evolution of an individual’s or group’s identity is an important type of learning for which simulated experiences situated in immersive interfaces are well suited [8]. Reflecting on and refining an individual identity is often a significant issue for students of all ages, and learning to evolve group and organizational identity is a crucial skill in enabling innovation and in adapting to shifting contexts. Identity “play” through trying on various representations of the self and the group in virtual environments provides a means for different sides of a person or team to find common ground and the opportunity for synthesis and evolution [9; 10]. Immersion is important in this process of identity exploration because virtual identity is unfettered by physical attributes such as

gender, race, and disabilities [7; 11]. These characteristics of immersive experiences suggest a variety of interventions that could aid unlearning, and research on this topic is very important in achieving the full potential of immersive media for educational transformation.

## References

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