Foreword

"All beings so far have created something beyond themselves..."
- Friedrich Nietzsche, Thus Spoke Zarathustra

We Live, Today, in a Mediated World

For many of us, this is a frightening thought. We pine for experiences past, clinging to the belief that the technologies we use to connect ultimately are the same ones that drive us apart. We question whether the world of tomorrow will reflect the core concepts of behavior and relationships that gird our understanding of what it means to be human today. We struggle to maintain an explicit cognitive division between that which is natural and that which is fabricated. For many, living in a mediated world is, essentially, supernatural.

But not for all. There is among us a generation for whom ubiquitous, high-speed, 24/7 connectivity to all things and all people is not a result of technology, per se, but instead, is simply a component of their naturally-occurring world. This generation finds the omnipresence of mediated connection no more marvelous than trees, or air, or indoor plumbing. For them, these things just *are*.

It was not that long ago when the idea of living a mediated life was relegated to the world of imagination and science fiction. Though innovative thinkers such as Vannevar Bush were exploring concepts such as hypertext as early as the 1940's, it would take nearly 50 years for pioneers such as Tim Berners-Lee to create the protocols that would give birth to the World Wide Web. By the end of 1992, the Web consisted of just 26 servers (interestingly, only 3 of which still are accessible today).

Since then, we have become a world of *immediates*. The Web has given us immediate access to information, to experience, and to each other. The Web also has become the ubiquitous medium for commerce, entertainment, and relationships. Research conducted by the USC Annenberg Center for the Digital Future, for example, suggests that Americans now spend approximately 19 hours each week online. What are we doing while online? Well, according to a recent Nielsen report, entitled *What Americans Do Online*, Americans today are spending about one quarter of their online time using social networking sites – and an additional 10% playing online games.

Indeed, today, Facebook claims over 500 million users. Add to that the nearly 400 million users who lack access to Facebook – and, therefore, are on other social network sites, such as RenRen and Kaixin – and the number of social network media users currently approaches 1 billion. Social media has become engrained in the fabric of humanity in a way few technologies ever have.

Virtual Worlds are Next

Habitat, a game released in 1985, was the first to give face and place to the online MOO/MUD games of the 1980's by combining a server-based graphical user interface, a persistent world, and individual player avatars. Since then, 3D immersive technologies like VRML and Adobe Atmosphere have sprouted, sputtered, then given way to newer approaches. By the turn of the century, several moderately mature virtual world platforms were laying the foundation for the next wave of social, connected, and immersive media – what some now are referring to as the "Immernet."

Activeworlds, OLIVE, Teleplace, Second Life, and Opensim are some of the most widely-used immersive platforms today – with literally dozens more in various stages of development and adoption. Together, these independent virtual worlds comprise the dominant outposts in our rapidly-developing immersive metaverse. Though the number of Facebookers dwarfs Second Life's active membership of approximately 750,000 – defined as those who log in more than once each month –Second Life continues to enjoy consistent, double-digit growth. Like the online multiplayer games such as World of Warcraft and EverQuest with which they coexist, the virtual worlds of today are seeding the next great sea change in how *immediates* will use social and immersive media to work, to play, and to learn.

For some, the idea of using glorified video games as a platform for doing serious work seems counterintuitive. It is important to note, therefore, that even though they share a common heritage, virtual worlds inherently differ from games. Games typically are highly-scripted, goal-driven environments in which participants engage in some type of quest to accumulate points or status. Virtual worlds, on the other hand, typically are collaborative social spaces that focus on supporting communication and sharing, rather than competition.

Herein lies the emerging value of virtual worlds, particularly for education. Virtual worlds allow educators to reintroduce into our online spaces those important instructional constructs upon which we have relied in our traditional environments. Important dynamics to support learning, such as presence, rich communication, and shared spaces, by and large were sacrificed when we moved significant teaching and learning functions from our physical classrooms to our Web-based ones. Through the use of avatars, persistent spaces, and opportunities for serendipitous, multi-modal communication with others, virtual worlds allow us to be together, apart. In the chapters that follow, you will read about various approaches pioneers are using today to harness the power of virtual worlds to help people learn.

Some are using immersive media to create "mirror" worlds – online spaces that attempt to replicate familiar or iconic places in the physical world. Today, worlds exist that mirror the Sistine Chapel, ancient Egypt, hospital rooms, theaters of war, and university lecture halls. Others are using the technologies not to replicate the physical world, but to augment and extend it. Giant models of the heart, inner ear, and even individual cells, for example, have been embedded within virtual worlds, allowing learners to immerse themselves within phenomena in ways otherwise impossible and to develop conceptual understandings difficult to catalyze using traditional physical spaces. Whether designed to mirror the physical world or to extend it, 3D immersive technologies are enabling new and powerful ways to meet learners where they are, and to help move them to where they want to be.

Of Course, There is a Catch

Whether designing informal social spaces, tutorials, simulations, visualizations, or quests, our pedagogical frameworks anchor our decisions about how we teach, what we teach, and the environments we create

for students to learn with and from one another. These beliefs we hold as teachers combine with the tools and environments available to guide us toward particular instructional approaches.

To capitalize on the new affordances that 3D immersive technologies bring to education, many of us must adjust our concepts of what "good" teaching and learning look like. There are some constructs that are universal, regardless of the medium. Correcting misconceptions, promoting discovery and exploration, stimulating background knowledge, delineating contexts – all are critical attributes of effective teaching. There are others, however, that may seem less obvious. For example, peer assessment, open note-taking, and cross-course collaboration are emerging hallmarks of effective virtual world-based instruction that, for many, make little sense in traditional environments and approaches.

Each of the chapters in this book details the use of 3D Immersive worlds to support constructivist approaches to teaching and learning. Constructivism is a pedagogical method that eschews passive, solitary reception of bits of disconnected information in favor of active, social, and experiential interaction with novel concepts, ideas, or problems. Constructivism suggests that all learning is a dynamic, iterative process of combining prior knowledge with shared experience and understanding, resulting in the formation of new knowledge. Although all constructivist approaches share some common beliefs, different camps exist. Some focus on the value of activity as a catalyst for learning. Others suggest the primacy of interaction, either between learners and content or among learners, themselves. Regardless of which way your personal pedagogy may skew, the role of teaching remains constant – that is, to provide the content and contexts that catalyze exploration and discovery and allow students to "do" learning.

The pioneering work described in this book suggests educators infusing immersive technologies and constructivist principles into formal and informal learning environments are making amazing strides. Still, many challenges remain. A significant number of people still lack the technical capacity to take full advantage of this emerging Immernet. Standards and protocols that will move us from our current state of 'walled gardens' to one of über-connectivity are in their infancy. And many educators still struggle with balancing their physical and mediated identities. Addressing these challenges will require innovative thinking, collaboration, and a commitment to advancing the greater good. The following compendium is a great start. By combining effective pedagogical strategies with technologies that allow them to augment and to extend their reach, the authors of these chapters are providing the foundation for a coming wave of *overteachers* certain to create something far beyond themselves. I know you will enjoy reading about each author's journey, and will benefit as much as I have from the insight and expertise contained within.

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