Being Early: Challenges and Opportunities as VR Grows Up

Editors' Note: To celebrate Presence*'s 25th year of publication, we have invited selected members of the journal's original editorial board and authors of several early articles to contribute essays looking back on the field of virtual reality, from its very earliest days to the current time. This essay comes from founding editorial board member Michael Naimark, who is actively engaged in exploring the dynamics between art and technology.*

1 What Were We Thinking?

A reporter recently calls and asks me to describe my first VR experience.
I reply, "How do you define VR?"
Silence.

The reporter (we had physically met several weeks earlier) is young, talented, and writes for a popular online "technology news" site. She's doing a story on "Cyberthon," a unique and early (1990) VR event concocted by Whole Earth founder Stewart Brand and Grateful Dead manager Jon McIntyre in the spirit of the original Electric Kool-Aid Acid Tests from the mid-1960s. They convinced Colossal Pictures, the largest soundstage in San Francisco, to host it, and like the original Acid Tests, the event went nonstop for 24 hours. Dozens of demos and scores of talks were presented. It was one of the largest and most prominent VR events of its kind, especially significant because it was so early. I directed video documentation.

Late last year, a collaborator on the Cyberthon "Doc Squad" finds, in his basement, a box of all of the video shot, 66 hours worth. Immediately, another Doc Squad collaborator comes forth with all of the original logs and transcripts, made possible by a National Endowment for the Arts grant for a radio piece. The piece, "Virtual Paradise," aired in 1992 and won several awards.[1]

Looking and listening to the Cyberthon material today, "VR" was far from defined back then, in the sense that the reporter had in mind, for example, wearable headsets. There were a couple of wearable headsets (VPL/NASA and Sense8/Autodesk) and there was another, larger headset on a boom (Fake Space). There were also 3D stereoscopic screen-based displays, 3D binaural sound demos, haptic devices, live performance-based interactive installations, and laserdisc/CDROM "interactive multimedia" projects (including from Apple and Lucasfilm). Plus an early online text-based virtual community, a full-length "video mirror," a "flying mouse," a Streetview-like interactive flyover, tabletop-size 3D relief projections, and real, old-fashioned, film-based holograms. Clearly, VR back then was a panoply of component parts and demos.

Still, the energy was electric, and everyone knew that VR would be something big. Speakers (which included Acid Test veterans Timothy Leary and John Perry Barlow) waxed about transforming civilization, saving the planet, and enlightenment. There was relatively little talk about startups, scalability, or business models. Most participants had survival strategies to continue their work, often in universities, corporate labs, and the arts.

VR, as the reporter had in mind and as we know it today, was not "a thing" yet, neither in terms of a singular product nor a viable industry.

1. Pescovitz, D. (2016). Fantastic radio show about virtual reality, c. 1992. *BoingBoing*, April 25, 2016. Retrieved from http://boing-boing.net/2016/04/25/fantastic-radio-show-about-vir.html. A link to the original radio show can be found in this article.

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Well then, why were we working on VR and what were we thinking?

2 The Moving Sidewalk of Progress

It's the annual Facebook developer's conference and CEO Mark Zuckerberg is speaking about VR. His opening slide is of an Oculus Rift VR headset completely disassembled, with all of the component parts neatly arranged on a large white tabletop. He says that all of these parts had existed for several decades but that they were too big, too expensive, or too low quality for good VR . . . until now.

On a recent visit to meet with a VR colleague at YouTube in their New York City office, the young receptionist exclaims to me how cool VR is. Then he adds, "I heard VR's been around for years but it really sucked."

We had a metaphor at Interval Research Corporation, Paul Allen's long-term lab in the 1990s, about how an idea and its inventor moves from a "thought in the shower" to a commercial success, that it was like being on a moving sidewalk. The default state, at least in environments like Interval, was that the inventor might first talk about a new idea with colleagues "around the water cooler" and given a little bit of encouragement, maybe would write things down and circulate them. Next might be a quick and dirty demo, then maybe a more formal proposal, a little bit of funding, then a more solid proof of concept, then perhaps a publication or patent application. The inventor, in this default state, would stay on the moving sidewalk through this process.

Next comes a relatively large border crossing, moving from "R" to "D." Interval's head David Liddle was fond of saying that "if you think you're doing research and you're batting a thousand, you're not: you're doing development in disguise." He would also say "in research, creativity is more important than productivity, and in development, productivity is more important than creativity."

As a research lab, Interval was chartered to look 5–10 years ahead, and like clockwork, as we approached its five-year mark in the mid-late 1990s, several projects were ready to move from R to D. "Bizdevs" were hired—outward-facing, market-oriented developers seeking to roll up their sleeves and make real products. The culture of the lab, long dominated by researchers and artists following their inward-facing creative drives, changed. It was a mixed blessing, and not something particularly new: crossing the border between inventing and commercializing has been called the "Valley of Death," with fundamentally different cultures on each side.

Curiously, during Interval's eight years of existence as a lab, some of our colleagues would ride the moving sidewalk only as far as they needed to, perhaps to publication or protection, then would scurry "back to the shower" where they could create more new ideas. Others, from the day they were hired, sprinted down the moving sidewalk as fast as they could, with an eye toward starting a venture. And some were content to stand still and simply go for the ride, all the way from the shower to product.

The state of VR today, unlike during the Cyberthon era, is almost entirely dominated by the culture at the end of the moving sidewalk.

3 Art and Invention

Around the time VR was taking off, I decide to learn more about the dynamics between art and invention. These are big areas. We associate art and artists with museums, galleries, collectors, curators, and critics. We associate invention and inventors with research labs, patents, startups, entrepreneurs, and lawyers. And while these communities may "drink in different bars," one would think there'd be lots of rich symbioses between them. I knew of no grand unifying theory, and can say, humbly, that if anyone ought to have understood these dynamics, given my background, I'd be a pretty good candidate. But I didn't.

My motivation may have been partially esoteric—art and invention are "unapplied" versions of creativity and innovation—but it was largely practical. As an occasional teacher and coach to students and young artists and designers, I felt it necessary to justify encouraging them to pursue the highly experimental, the far-out, the out-there, long-term, not immediately marketable, creative work.

It's easy for folks on the outside to say, "of course you should" and talk about the importance of cultivating perspective, long-term vision, holistic thinking, and critical skills. But on the inside, it's not that simple. I wasn't proposing sacrificing class time dedicated to learning code or assessing markets for reading McLuhan or unfettered play (actually I was a bit), but was in a dilemma how to proceed, how to balance, how to integrate. Indeed, if the net result of far-out thinking was work that was too early and its makers, perhaps years or even decades later, being left in the dust, how could I justify teaching that?

So I decided to ask. During the two-month period of October and November 2014, I gave a series of six presentations and dialogues in the U. S. and Canada on "art and invention," mostly to art and design students.[2] Here's the presentation abstract:

Artists and designers sometimes invent—new processes, media, or technologies—in the name of realizing their work. Invention isn't the primary motivation, and the works are often clunky, frugal, and just barely working (but working!). Broader, practical, or commercial applications are usually far from the artist's mind. Meanwhile, and perhaps ironically, large research and commercial institutions spend billions of dollars per year on invention, often in the same arenas. So the critical question is: how do artists fit in? Naimark will explore this question—and such issues as control and compromise; ownership and intellectual property; time horizon and profitability; and cultural consequence and hegemony—mining his art projects and experiences for lessons learned.

It was a lively and provocative time, and I'm grateful for many rich interactions. It clearly indicated a tension among students and creatives between following their passions and short-term gain.

What I learned, in a nutshell, was that today's artists and inventors, and yesterday's pioneers, people working on unapplied, early, seed ideas, can't "wait for their proverbial phone to ring" but must reach out halfway to the developers, entrepreneurs, and short-termers to explore symbioses. It's as much about communication, culture, and diplomacy as it is about substance.

There's an epilogue. Several months later, Alexander Rose, Executive Director of The Long Now Foundation and himself not old, adds, "it's more than that." He went on to say that the younger and more end-of-the-sidewalk people "don't know what they don't know." Therefore artists, inventors, and elder pioneers have to reach out "more than halfway."

4 Building Bridges

I'm having coffee with a cofounder of a very well funded VR startup. He's a youthful 50-ish years old, financially successful, and a serial Silicon Valley entrepreneur (this is his sixth startup!). He's describing how much he loves Silicon Valley ventures and, particularly, working with young people. "They're so fresh with new ideas." But then he describes a mutual colleague, an older, well-respected heavyweight in his field, as sometimes being discouraging to work with. "We sit in meetings and he's like 'this won't work and that won't work.'"

A few months later, I run into the older heavyweight colleague. He says, "It's weird. I sit in meetings and say 'that won't work' and nobody listens." He adds emphatically that he knows he's mostly right, that people haven't done their homework, and that the entrepreneur and his young startup colleagues will eventually come around.

Last fall, I have the privilege of serving as Google's first "resident artist" in their new VR division.[3] As one might imagine, the Google VR division is white hot, initially garnering attention for its "Cardboard" VR head-

2. The "Art & Invention" presentations were at the Stamps School of Art and Design, University of Michigan, October 9, 2014; School of Arts, Technology, and Emerging Communication, University of Texas, Dallas, October 28, 2014; School of Media Studies, The New School, November 12, 2014; Interactive Telecommunications Program, New York University, November 13, 2014; Bennington College, November 18, 2014; and at "Convergence: International Summit on Art+Technology," Banff Centre for Arts and Creativity, November 28, 2014. A related video, made at the Gray Area Art Festival, San Francisco, May 23, 2015, can be seen at https://youtu.be/w-WPUus4Ebo

3. Naimark, M., Lawrence, D. H., & McKee, J. J. (2016). VR Cinematography Studies for Google. *Medium*, June 22, 2016. Retrieved from https://medium.com/@michaelnaimark/vr-cinematography-studies-for-google-8a2681317b3#.o35mey4b8

set and gaining momentum in a variety of areas as it quickly expands. My colleagues there, like the Google community in general, are mostly under age 30. I regularly ride the "GBus" down to Mountain View from San Francisco (ironically, where my own workspace is in Francis Coppola's Zoetrope building, definitively "old guard").

When sitting in meetings at Google, I'm always the oldest person in the room. My young colleagues are all super bright but sometimes "don't know what they don't know" and it's tempting to, like my older heavyweight colleague, be brusque. But "experience" to some may be "baggage" to others, and it's a sensitive topic on both sides. What to do? Reach out and enjoy the challenge!

As VR grows up, we'll sometimes see small changes having deep and lasting effects. The history of new media is rife with examples of exquisite treasures and epic disasters. The treasures can come out of nowhere and the disasters, I'm convinced, are often avoidable. A worthy contribution that the early community, and those wishing to stay early, can make is to mindfully build bridges—between the past and the present, between different professional cultures, and between the far out and the practical.

Oh, and the youth-oriented VR entrepreneur and the older heavyweight colleague? Knowing them both, I've watched them increasingly warm up to each other. Turns out the older colleague *was* mostly right. They continue to work together.