DIGITAL NATIVES
A conversation between virtual reality visionaries Jaron Lanier and Kevin Kelly
By Casey Newton

Highlights from the conversation
(http://www.theverge.com/a/virtual-reality/interview#story)

In 1989, Kevin Kelly, an itinerant writer, photographer, and future founding editor of Wired magazine, traveled to Redwood City, California, to meet Jaron Lanier in his office. Four years prior, Lanier — a computer scientist with a mane of thick blonde dreadlocks — had founded VPL Research in an effort to bring virtual reality hardware to the marketplace.

"Right before my eyes, Jaron Lanier built an artificial reality and then climbed into it," Kelly wrote for his Whole Earth Review magazine at the time. Kelly wrote an introduction to Lanier's work at VPL, capturing the growing optimism about the technology as well as fears about its implications. He also organized an accompanying interview with Lanier, in which the programmer attested that, "We're witnessing the birth of a culture here."

Lanier may have been overly optimistic: what followed was a decades-long period where virtual reality continually fell short of sci-fi visions. A quarter century later, Kelly and Lanier met again in the light of all that has happened since. I sat in on the conversation, which took place at Lanier's home in Berkeley, and tossed out the occasional question. But mostly I listened as two of technology's leading voices brought real scrutiny to virtual reality's past, present, and future.

On our disappointment with technology

I wonder if the reason we keep on cycling back to hope about cool things like VR is that for all the tech news and our fetishizing about our touch devices, we're still a little disappointed in the menu of tech items that we have at this late date. It's 2014 and you can buy a robot to clean your house, but it doesn't really work that well yet. We all think it will, some day, but it's not quite there. We have some demos of cars that drive themselves but you can't really buy one. Everything is kind of taking so long. So I feel like, in a way, we keep on cycling through the same tech hope stories because there's an impatience and frustration. We wait until we've forgotten one of them, then we rediscover it. So I think there's a little bit of that going on.

On spurred progress

The components have finally gotten cheap enough that we can start to

talk about them as being accessible in the way that everybody's always wanted. Although, it's one thing to just have an affordable headset that's decent, it's another thing to have a whole system. Moore's law is so interesting because it's not just the same components getting cheaper, but it really changes the way you do things. For instance, in the old days, in order to tell where your head was so that you could position virtual content to be standing still relative to you, we used to have to use some kind of external reference point, which might be magnetic, ultrasonic, or optical. These days you put some kind of camera on the head and look around in the room and it just calculates where you are – the headsets are self-sufficient instead of relying on an external reference infrastructure. That was inconceivable before because it would have been just so expensive to do that calculation. Moore's law really just changes again and again, it re-factors your options in really subtle and interesting ways.

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On how his feelings about VR have changed

In the '80s, I had maybe an outright mystical approach to it. For me, the very most important thing about VR was that when you were in it, you'd feel your own existence in the sense that if all the sensory input is artificial, then what's floating there, that's your consciousness. So to me, it was sort of proof that subjectivity is real; that consciousness is real, that it's not just a construct that we put on things. Just to notice that you really exist, to me was the very, very core of it. There were a zillion and one variations on that, that can become really vivid and colorful in different ways. But that was always the core for me. And extending from that, this possibility of a kind of communication that would involve directly creating what people sense in common instead of relying as much on symbols such as words.

KK: The post-symbolic…

J: Post-symbolic communication, yeah. I used to go on and on about that stuff. And I can still do it, if asked. At the time, I shared a kind of idealism about what digital stuff would do to the world with my friends. And I've actually been connecting with a lot of people from those days. I've just recently started emailing with Richard Stallman again after years of being out of touch; and many other people from those early days. You know, I think all of us had the sense of mission that we were really doing something that would open up the world, and that a lot of mankind's problems were kind of just artificial and due to inadequate technology: if we could just have better communication and all this stuff, a lot of problems would clear up.

I had to reconsider that ideology at great personal pain because I didn't want to question it. For me, it just took a lot of individual

people not doing so well as digital stuff rose up. And, in my case, the particular thing that bothered me was initially seeing musicians not do as well as I thought they would. There was a time, up until around the turn of the century, I was writing fire-breathing essays like, "Piracy is your friend" and "Open everything up and it'll work out." Then, when I started looking at the numbers of people who were benefitting, I realized that what was actually happening was the loss of the middle hump of outcomes; we were concentrating people into winners and losers, which is the worst outcome. I've also become really concerned about VR's role in that.

On the strange things researchers are doing with VR

A few researchers started to do experiments that I would have been terrified to do myself. I'm thinking of a person who has been a research partner, a collaborator for many years — Jeremy Bailenson at Stanford. He started to just sort of see how he could screw with people in VR. I was always like, "Can we give them better math abilities by changing how their bodies work?" — that was the kind of thing I was interested in. [Bailenson] was like, "Hey, I want to see if I can screw with their self-esteem by making them gradually shorter during an interaction, or turn gradually more black during an interaction." And he can. This notion that you could see VR as a way to screw with people without their awareness, crossed with our current business model where everything is about advertising and manipulation and spying — we [will] have a surveillance economy in the online world. It's been very painful to see that potential unfolding.

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The whole spectrum is true at once. I think all the mystical, ideological stuff is still as true as it ever was. The potential is all there, and the beauty is all there. But this potential for manipulation is also there.

On how virtual reality has evolved over the past 25 years

The biggest thing that's happened is that the industrial use of VR — as opposed to consumer and entertainment use — matured, and has become ordinary enough to be boring. But it hasn't happened in this sort of big, unified way; it's a bunch of little pockets that are each very specialized.

The major ones are surgical simulations and training — in fact, that one got good enough that at this point our main concern is overuse; there is a danger that surgeons are spending a little too much time in simulators and there might be some damage done. That's not known, but that's been a concern. We know it's true for flight simulators. For instance, the crash that happened here in San Francisco, the Korean airliner, has been attributed in part to an overreliance on simulator training and an over-reliance on automation in the cockpit, although I think there were some other issues too.

Another one is vehicle design — you basically cannot buy anything that can surround and move you that isn't first prototyped in VR now. Every car, boat, plane, civilian, military — everything is designed in VR now.

On trying new models with VR

Every time there is a new platform, there is a change to create a new economic model. 3D printers for hobbyists have kind of come out on a Linux model, where everyone shares their models. What if that had happened on a pay-per-model business where everyone could pay and get some money out of it? It would be an experiment. A lot of people would really be offended by the very idea of it. But what if it actually generated a lot of cool models and if it gave some people the ability to pay for their kids' college educations? What if that stuff actually worked out really well and everyone ended up happy?

I don't know. I mean, look, with these things, ideology isn't a good measure. You have to be empirical. Starting up a VR platform is another one of these points where we could empirically test it and say, let's do this one in a whole new way that's never been done before: [create a] really easy, convenient universe of micropayments where everybody is on equal footing, everybody is a buyer and seller, everybody is a first-class citizen, and just see what happens. It might be great. I have a feeling with VR that it could be great — the thing about it is it does take a lot of effort and craft to make good stuff; to make a good Minecraft world, or to make a good world in whatever thing you do. It would make sense for society to design that as a way [in which] you can actually directly make a living.

On the pleasures of VR, past and present

The first thing I'll say is I use VR a lot these days in research of different kinds — cognitive science research and some visualization stuff. I also love working with exotic optics and sensors and I still play around with that stuff. And I absolutely take time to play beyond what's needed for the research. I still find great pleasure in screwing around with it. But I've always felt, from the very beginning that it's — how would I say it — you know, every musician I know prefers to live without the radio on, enjoys the silence and contrast. The best way to use VR, not in some moralistic or judgmental sense, but just in terms of my experience, is [to] use it as little as possible and enjoy the contrast that it gives me to reality.

"I'm kind of bracing myself; waves of teenagers whose bodies have become so inactive from being immersed that hospitals have to sever their limbs or something."

At the old lab, VPL, one of the things we'd sometimes have is just a flower sitting there. So if somebody was in a demo for 20 minutes,

we'd come out and say, just look at this flower. And you suddenly saw this flower in this hyperreal way because your senses had adjusted to this sort of lower resolution of a virtual world. Then, when you see reality, you suddenly see it with this kind of detail and this density. You see just the sheer reality of it. You just feel things from it. It's really incredible. To me, that contrast, that feeling that you have when you're out of it after you've used it, has universally been more precious than what happens in it. So, yeah, I like it. I might be wrong about this, but I suspect that a lot of people will find what I found: that the coolest thing to do with [VR] is not to be in there for hours the way people are with their pocket devices these days, just staring at the screen…

KK: Or playing games.

J: ...or playing games. The coolest thing is to come out of it for hours. I think that's really just the most amazing thing.

On the importance of experimenting

J: As for what people actually do, I'm kind of bracing myself; waves of teenagers whose bodies have become so inactive from being immersed that hospitals have to sever their limbs or something. I'm very much hoping that it isn't that bad but the thing about reality is that it's not fully predictable. We have to dive in and learn. I think it's important to make experiments, and it's really important even to experiment in a way that can be a little dangerous. It's important to take risks. The thing that's really a sin is to not learn from them, to ignore the results. That's when you really lose it. As long as we're awake and paying attention and we learn and get better, that's what matters.

On the future of VR and commerce

KK: As we build VR systems, what things should people keep in mind? Now that we know what we know, how should we build these differently?

J: I think every technical person is obliged to think about how we can move towards a world that really serves people, rather than splitting us into an elite and everybody else. It's funny how old all these ideas are. So much of this goes back to 19th-century thinking, and it's correct thinking, it turns out. It's just the strangest thing. At any rate, I'm really concerned by the way tech culture has evolved since the clouds got rich, you know? We're seeing a kind of a tech-supremacy feeling.

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KK: My friends who are making more VR worlds or gear, what do you think they should not be doing that they are doing right or that they should be doing that they're not doing?

J: We have to evolve out of what we're calling the advertising business model. If you extend the idea of advertising to total surveillance in the way that we're doing it, it doesn't result in a stable, serviceable way to build a society. We have to all come to that recognition, find an alternative, and it's never more true than with the VR stuff.

Obviously, I'm hoping Facebook's business model will evolve by the time they ship something. Facebook is kind of painting itself into a corner where both it and Google are in this mutual embrace of making each other more and more creepy in battle. And they have to find some way out of that.