Make Your Future: Two Essays About Where We Are Headed

Chapter 9

The Future of Education: Are We Ready?

—will.i.am and Brian David Johnson

My early morning flight into LAX landed on time. Dashing through the terminal, I jumped in a cab and said, "DreamWorks Studio, please."

"What?" The cab driver turned his head slightly.

"DreamWorks Studio," I said again.

"Where's that?"

A little disappointed, I gave him the address.

"Oh," he smiled finally, "DreamWorks Stooodios." And with that we were off.

It was a stunning early spring day in Los Angeles, California. The sky was clear and blue with just a hint of heat in the air. I had come to LA to have a conversation with will.i.am. Most people know will as the leader and producer of the multi-platinum, award-winning group, *The Black Eyed Peas*. He's also a composer, designer and philanthropist. But I first met will at a technology showcase event that Intel was throwing earlier in the year.

As Intel's futurist, I was interested in will's perspective on the ideas we were cooking up in the lab. We walked around the show floor chatting with the engineers as they explained the new products and technologies they were developing. will dove right in, asking questions, picking up the gear

and testing it out. Each time we walked away from a booth will gave me his assessment. He pointed out the flaws, the innovations as well as how it might do in the global market. His observations were spot on and quite funny.

During lunch we got into a long discussion about robots, artificial intelligence and particle physics. I quickly realized that I had met a fellow geek with a unique perspective on technology and culture. At the end of the day I asked will if he would be interested in sitting down with me to have a more in-depth talk about the future. As a part of my futurecasting work, I consult with industry experts all over the world, gathering their perspectives on where they think the world is going and what they want from technology. It's my job to develop a vision for what people will want to do with technology in the year 2021. I do this so that our engineers and designers can set targets to build the chips to capture people's imaginations.

"That sounds pretty cool," will replied. So, after a few months of juggling schedules we found a day that worked in May of this year and that's how I found myself in a cab, racing down LA's freeways towards DreamWorks Studio.

It was a busy day at DreamWorks Studio. The place was packed. I learned that they were throwing a big press event for *Kung Fu Panda 2*, starring Jack Black, Dustin Hoffman, Angelina Jolie and Jackie Chan.

"I'm here to talk with will.i.am," I told the guard at the gate just to see what happened.

"OK." He ducked back into the booth. He returned with a puzzled look and asked, "Who you here to meet?"

"will.i.am. I'm with Intel."

"Oh," he disappeared again and retuned with a badge that read:

Brian David Johnson Kung Fu Panda Summer Camp

"Thank you!" I smiled and trotted in through the gates.

DreamWorks Studio doesn't look like your typical studio. It's a collection of pretty unassuming buildings linked together with hedge-lined walkways and dotted with splashing fountains. Today the paths were decorated with bright red Chinese lanterns and seven-foot tall Kung Fu Panda movie posters. Ska2ooosh! In the distance I could see a gigantic stuffed panda walking around hugging kids.

Typically, when I interview experts we try to film the conversations. It helps me to review them later and sometimes people are interested in the footage. Today was no different. Or that's what I thought. When I rounded the corner to meet will and the team, I stopped: "Holy cow!"

I did actually say *Holy Cow* out loud. The place was packed with a film crew. I counted four cameras, a mess of lights and a bunch of serious people working away getting things ready. I knew this wasn't going to be just your average chat.

You can see the video of my conversation with will here: http://techresearch.intel.com/tomorrowproject.aspx. The conversation that follows comes from that day at Dreamworks. I wanted to feature it here because I was challenged and impressed with our conversation about education. will and I share a passion for both education and technology and the ideas that we were kicking around, I wanted to explore completely. It's a conversation that needs to be heard.

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I like starting off these conversations getting to know when and how people got passionate about technology. It's always interesting to hear when they first started thinking about the future and the potential of what they could build or design or create. I've also found that when you ask people to tell the world about their first possibly-dorky kid story it's always good to go first. So I did.

BDJ: When I tell you my story you're going to see that I'm a huge geek. I love everything science, everything science fiction. You name it, I love it.When I was a kid, my first computer was a Texas Instruments. It was called the TI 99.

My family had just bought the computer and we kept it down in the basement. So, I would sit down there all day and night programming. I was learning to do computer programming. I think I was about ten years old. Finally when my mom made me go to bed I would have to save my program to the disk drive. Now this was a few decades ago so the disk drive was actually an audio tape. You would record the program to an audio tape and then you could load it back in later.

When it was done I'd head up to my room and take the tape. I'd go back up to my bedroom and I'd put the tape in my old tape player and press play and listen to the squeaks and squawks of all the code that I'd just recorded onto the tape. I'd lay in bed with the lights out and listen to the tape and I'd imagine all the code, all the 1s and 0s flying around my bedroom. So I pretty much have been a geek my entire life.

will.i.am: That's like the ultimate geekdom. You were rocking out to code instead of *Rolling Stones* and *Jimi Hendrix*.

BDJ: So when did you first become passionate about technology?

will.i.am: I became passionate about technology in elementary school. I went to a school called Brentwood Science Magnet School here in LA.Early on I was fascinated with science. I had a teacher named Mr. Schneider and he taught us physics. I was only in fourth grade but I really remember that.

Then, in fifth grade, we had a computer lab filled with Apple IIc's. I remember Mr. Lipwalk teaching us how to use them. I still remember him teaching us "open Apple C, open Apple V, open Apple D" and all the short cut quick keys to make the computer go faster. I really remember drawing on the computer. That really stuck with me.

That's when I remember I got excited about technology and computers. I don't know if that defines me, you know. Do you think I fit into geekdom? I think that geekdom is a nice kingdom.

BDJ: Do you consider yourself a geek?

will.i.am: I'm a wannabe geek in the geek. I can hear the OG geeks saying, "He ain't real. Get him up out of here." The gangsta geeks can be hardcore. Those dudes are like gangsta geeks, those guys are worse than the Crips and Bloods.

But I do love technology. I love it. I'm passionate about it. It helps me amplify myself. I make music using it. I use the computer to amplify my thoughts and share them across the planet. So by that I'm a geek.

You know I do dream about making devices. I dream about collaborating with code writers because I can't write code. I wish I did. But I can't so I want to collaborate with code writers and engineers. Most people in my field of work don't even think about that. But I really want to work with them.

I really think most people have no clue on how important code writers are. They have no clue how important the discipline and education can be. When you really think about it, when you really think about the future it's that technology that's going to give us great things. The geeks, the code writers are thinking about that. They're thinking about the future and they're building it.

But I think about it, appreciate it, and I want to amplify it, turn that loud.

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After we kicked things off we started talking about technology and the future and the things will had seen traveling the world. Throughout our chat we kept

coming back to the subject of education and technology. The more we talked about it, the more passionate will became.

will has been a very public and vocal advocate for education throughout his career. Probably the most televised evidence of this was at the 2011 Super Bowl. will and *The Black Eyed Peas* were playing the half-time show and during the group's smash hit "Where is the Love" he told America that it needed to get things straight, get kids educated and create jobs. But this was by no means his only advocacy for education.

In 2009, will created the i.am scholarship to provide financial assistance for future leaders and innovators. The idea behind the scholarship is that it pays for the entirety of the student's post-secondary education as well as financing professional opportunities. will announced his plan on *The Oprah Winfrey Show* and provided four 4-year scholarships for students in need.

We were in the middle of a discussion about how computers are getting smaller and faster and less expensive when will stopped me:

will.i.am: Yes we are speeding up technology but we're also slowing down humanity. There's no investment in education. I'm talking about popular culture now, regular folks.I'm not talking about the people that have been blessed with parents that are well off and an Ivy League education. That's a very small sliver of the world.

When I say we're slowing down humanity I'm talking about my cousins' friends and my cousins' friends and their friends and their families. They are just regular folks. Where I come from, the people that I grew up with in the projects, they're not speeding up. They aren't getting the skills to keep up. What does their future look like when computers are smarter than them because we've invested in computers being smarter than them?

Think of how much money it takes to make computers smart. Then think about how much money we haven't spent on people, we've shut off the money. That's scary.

You're from Intel. Moore's law tells us that computers are only going to get faster each year. (Note: Moore's Law is an idea that came from one of Intel's founders which said that through engineering computers will double in speed every two years.) What happens when computers get smarter than regular people? We might get there sooner than you think.

BDJ: Some people say that by 2045 computers will be smarter than people. That machine intelligence could surpass human intelligence.

will.i.am: OK, so it might surpass all human intelligence in 2045 but for some people, for regular folks, I wonder if that race for equal intelligence might be neck and neck by 2020.

BDJ: It's hard to know exactly.

will.i.am: I know, but think about it. What we are seeing right now is an incredible neglect. We aren't preparing for that future. We aren't educating people for that future where computers are almost as smart as people. We aren't preparing a seven-year-old that lives in Compton to compete with a computer.We aren't preparing a twelve-year-old that lives in Baton Rouge to compete. I'm not just talking about getting American kids to compete with other seven-year-olds and twelve-years-olds in other countries. I'm talking about getting those kids to compete with the computer in your pocket, with your smart phone. What happens when your smart phone is smarter than those kids? Where's the preparation?

BDJ: That's a great point. You're saying that we're putting lots of money into technology. We spend billions of dollars developing the latest and greatest gadgets and computers but we don't spend nearly the same amount of money trying to allow people to compete with the latest and greatest. We're not putting that much money into making people smarter.

will.i.am: We're not. I wish I had the solution to that.I don't even know why it's not happening. I can't fathom why. It's a business question. What's the business in ignorance? There must be a pretty freaking big business if we've sustained so much ignorance for so long. Maybe we should put it on the stock market. Then we can watch Ignorance's stock price shoot up.

BDJ: Maybe make an Ignorance Index.

will.i.am: Ignorance stock. Do you know how many people invest in ignorance stock? Lots of people invest in the Ignorance stock.It may not be on the stock market but people are sure investing in it. If they're not investing in education then they're investing in ignorance. How is that good for business? It's happening and I'm worried people are getting dumber every day. The Ignorance Index continues to rise . . .

Let me ask you this. . . . My cousin is 12 years old now. When she's 22 is she going to be intelligent because schools are going to change in the near future? Someone is going to have to think how to redefine education and mental stimulation to keep kids like her motivated and give her an idea of what she might be competing with.

You have to ask yourself . . . What are you? Are you a consumer? You just going to buy stuff? You just came here to buy? Are you just going to make waste? How are you going to contribute to the planet? What's your contribution while you're here?

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In 2011, will made a big investment in education. Throughout the year he was a highly visible supporter of Dean Kamen's FIRST Robotics Competition. FIRST stands for *For Inspiration and Recognition of Science and Technology* and is an organization founded by Kamen in 1989 to search for and develop ways to get students excited about engineering and technology. Kamen and will teamed up to make an hour-long documentary called "i.am FIRST—Science is Rock and Roll". It showed on the ABC Television Network and gave viewers a peek inside the robotics championship in St. Louis.

I was fascinated by will's interest in robotics and passion for education. One of the areas where I've been working recently is around how we can begin to architect humanity and social awareness into the technologies we develop. It's possible. Using social science paired with computer science we can create products and software that have humans at the center of their design. This way we aren't developing technology for technology's sake. We're not making computers faster just because we can make computers faster. What's the reason we're making these computers smarter? What's the effect we want all of this intelligence to have?

will.i.am: Right now we've gotten to a point where computers are super fast. What else do you want the computer to do for you? What do you want technology to do for you? Do you want it to think for you? It already does in many ways. It stores all your information. What else do you want it to do? Can you possibly imagine something else that you want your computer or technology to do for you? It's going to get to the point where we won't be able think anymore on what it could possibly add to our lives.

What if we get to the point where the human mind just can't think what else it needs, no matter how advanced computing becomes. As computing advances, what if the computer knows what it needs.What if it starts creating for itself and *POOF* is beyond us. Now, are we prepared for that? Are we preparing for that? Nope.

When I go back to the neighborhood I come from, there are a whole bunch of people who aren't thinking about this. The planet is full of people who aren't

thinking about the future. Shouldn't we all prepare? I think we should. So when do we start? How do we start?

I'll give you an example how we're getting dumber and machines are getting smarter. I was driving down the street here in LA, and the GPS lady said, "Turn right two miles ahead at La Cienega Boulevard." I do what she is telling me to do because I need to get somewhere. But the thing is I know where I'm going, I've been there before. But I'm listening to her tell me what to do, "Turn right at La Cienega Boulevard." So I turn right even though I know where I'm going. I know La Cienegais in front of me. I know that I'm supposed to turn left. But I bypass this thing called my brain because it's convenient. I'm not thinking anymore. There has to be balance. That's what I'm saying. We can't bypass the advancement of our own brains along the way, because we're going to find ourselves in a future that we won't like.

Let me ask you do we know what we're building? You're a futurist. Can you imagine what we're building? Check me out. I know what I am. Where are we going?

BDJ: For me the question is: Where do we want to go?

will.i.am: You can't say that. You can't ask the question like that because then there are two *we's*. Do you understand what I mean? There's the *we* that are all moving forward and passionate about technology and the future. Then there's the second *we* that is staying back and lagging behind. There are the regular folks, like the kids I mentioned before, they are getting left behind. One group is speeding up technology while the other group is getting left behind.

BDJ: So how do we connect the two? How would you have a better balance?

will.i.am: Right now, my phone is my assistant, it's my conduit and it connects to my friends. My phone means a lot to me. It means a lot to a lot of people.

So, in theory, I'm having a good relationship with my technology. It's helping me. It's connecting me to people. As we're preparing for a more balanced future where the people that are using technology can actually compete with technology, then my phone kind of becomes my friend.

I don't want to misuse the word friend. I have a relationship with my phone because it connects me. I think as we move towards the future, we should be able to program my phone for me personally. We could program it to educate us and give us that balance but on a personal level, to make sure we're equipped for that future.

Now if we really start to do this we need to be careful. Lots of people could be fearful of this. Get worried that computer might get too smart and how could they actually help us. But that's where we need futurists, people like you to imagine a new outcome. Because for most people all they have to go on is the movies. You might have a different, more human vision for the future but the movies have told the rest of us about Terminator and how we're supposed to fear technology.

But imagine if we could get people to think about technology differently. Get them to think how we could use it. As it gets more intelligent, it would assist our needs as if it was an extension of our brains, like another part of my brain. Right? My brain doesn't harm me. It protects me. Imagine if we start designing our technology to be just another part of our brain, then we're great. You have to look at it from that way. We have to get people thinking about it that way.

Now, I'm not talking about inserting technology into your brain. That's not what I'm saying. I'm talking about an accessory for us, I'm not talking about turning us all into some Bioman.

BDJ: We need to change how we think about technology in the future. We need to give people different stories that aren't so negative. So that people can ask themselves how do they *really* want to use technology? We need different visions for the future, new stories. All of these computers and technology are things that we create as humans and as it gets smarter and as it gets faster then we need to be very clear about what we want that device to do. We shouldn't be afraid to have it address the really hard problems. We shouldn't be afraid to challenge ourselves, to go at things like preparing for the future.We can go at things like education and shift around any fear and actually do something with it.

will.i.am: Yes! For example, imagine you were a trainer and I came to you and said "Hey man, I want to get buff. I want some muscles, man." Then you're going to say, "Hey, will, if you want to be buff then you have to work out. If you want to work your chest out then you've got to work your back out too. If you're going to work your back out, then you have to work your core out as well. As a matter of fact, you've got to start with your core and then move up and down."

So, right now technology is getting buffer and buffer and buffer and buffer, but it's just all out of proportion. Technology right now is like this buff little skinny dude with a buff chest, but no muscles in his back or even his core. It's just one over-developed area. Somebody has to tell that dude that he's got to work out everything.

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BDJ: What's your favorite science fiction story?

will.i.am: I like *The Matrix*. All of them. Some people are like, "I just like the first one." But I liked all of them.

BDJ: What did you like about it? Why do you think you're drawn to *The Matrix*?

will.i.am: I like mental movies that make you think. Movies that after it's over you're still thinking about it. When I first saw *The Matrix*, I had all these great conversations with my friends. Asking: "What do you think it is, man? Like what?" And then you imagine what if the Matrix was real. What if this was the Matrix we were living in? Movies like that completely change the way you think. That's why I like them.

BDJ: I'm a big believer in science fiction based upon science fact, because I think we can use it to think about our world differently. Just like *The Matrix* got you and your friends thinking about the world differently. Do you think we could use science fiction to give people a new way to look at technology? Just like *Terminator* helped to make people afraid of technology we could use science fiction stories and movies to give people a new narrative. If we wanted to address education and preparing for the future what would that science fiction story look like?

will.i.am: That science fiction story looks like preparing for future threats. Preparation. All I know is I go to the airport and I take off all my clothes and I'm cool with it because I think I'm being protected and it's safe to do that. Right? And there's order to it. People have been hired, there's jobs, lots of money is being spent at every single airport around the world for preparation.

Then you go to schools—and there's no preparation. There's no money being spent to think about potential threats. Now, is there a potential threat? Is there a potential threat 20 years from now when the five year old isn't given the tools to really go out in the world to compete? Who are they competing with? That's a science fiction movie.

I think it could be a negative science fiction story where a computer gets a job over my little six-year-old nephew. I'm talking about a real job, a thinking job; planning, preparation, organization, business development. Real jobs. Not like cash registers. Computers are already doing that now. Not like building cars because computers are doing that now, too. But imagine a story where technology and computers start planning and having business development meetings all on their own. Imagine when they start doing stuff like designing

all on their own and my nephew can't get a job in America because he got left behind. Maybe if people see that story then they might know what to prepare for. Now we just have to figure out what we need to do so that that future doesn't happen.

BDJ: We should write that science fiction story.

will.i.am: You want to write that. I'll direct it.

BDJ: Deal.

will.i.am: Hey, we should get DreamWorks to fund it.

Then the entire film crew started laughing and we stopped filming. will looked around and smiled. My phone buzzed, telling me my taxi was waiting for me at the front gate of the studio. will headed out for a late afternoon meeting and I rushed back to LAX. I needed to get back up the west coast, I was having dinner with writer and media theorist Douglas Rushkoff. We didn't hit much traffic. I made the flight and arrived early at the dinner.

Waiting for Douglas to arrive I was struck with how similar will's and Douglas's views were on technology education. In his most recent book *Program or Be Programmed* (Co-authored with Leland Purvis) Douglas wrote, "The underlying capability of the computer era is actually programming—which almost none of us knows how to do. We simply use the programs that have been made for us, and enter our text in the appropriate box on the screen. We teach kids how to use software to write, but not how to write software."

Both will and Douglas hold coders and programmers in high regard. They see a world where computational power, computers have spread throughout our lives and the really important skill is understanding how to write the code or software to harness that power. It is not enough to be able to use a program or a spreadsheet. Both will and Douglas see that to really take control of our future the next generation must be able to write and read that code, through education everyone must be given the power to take control of their future.

Chapter 10

The Future Can Be Programmed

—Douglas Rushkoff and Brian David Johnson

Douglas Rushkoff is a trouble maker. For twenty years he's been causing trouble, stirring things up and generally making people think differently about the world around them. In the early 1990s, Douglas came onto the public stage with his book *Cyberia: Life in the Trenches of Cyberspace.* The book was about the Internet and was originally supposed to be published in 1992 but his publisher Bantam was worried that the Internet would be "over" by the time the book was released in 1993. From there Douglas has never looked back. He's written several books (*Program or be Programmed: Ten Commands for a Digital Age; Life, Inc.: How the World Became A Corporation and How To Take It Back* and *Get Back in the Box: Innovation from the Inside Out*), published articles in *The New York Times*, *The Guardian*, *Discover* and *The Daily Beast*. He makes documentaries about media and culture (*Digital Nation, Life on the Virtual Frontier, Life Inc. The Movie* and *Merchants of Cool*). But above all else Douglas is a trouble maker.

I first started my conversation with Douglas on a dim May evening in Portland, Oregon. I had come straight from the airport and Douglas had just wrapped up speaking at a conference in town. Our discussion continued through emails and phone calls as we talked about his thoughts about the

future. When you talk with Douglas, even for just a little while, you see that he cares deeply about people and about humanity. He's passionate about our world and that we have the power to shape it. The futures that Douglas sees and talks about are not always optimistic; he feels we have a lot of work to do. But above all Douglas believes that this is our world and it is our decision to change it.

I started off by asking Douglas how he first got interested in technology and passionate about the future.

DOUGLAS: When I was becoming passionate about technology, computer technology as we know it didn't exist. So I got into more basic technologies like radio. I was fascinated by mysteries such as how does the sound coming out of my little radio get here all the way from the radio station? How does the crystal receive that signal, and how does the battery amplify it? So my initial interest was in the last generation of technology: circuits and chemistry and radio and telephony.

I also loved TV—but less as a technology than as an extension of theater or storytelling. Sure, I was amazed and thankful that there was such a technology as TV. A magic box that would broadcast images into the living room! But television's allure just made me want to get on the other side of the screen. I wanted to be one of the people programming the TV, rather than just the person watching the TV. I wanted to know how to get on that production side of the image factory and since television studios were not accessible to 10-year-olds in 1971, that meant becoming a theater director and a writer and ultimately a filmmaker. And just around the time I was old enough to actually consider doing all this professionally, computer programming emerged.

Back then it wasn't a matter of having your own personal computer or something that you could use at home. When I started learning the basics of computer technology you had to sit down in front of a terminal connected to an IBM mainframe. But the day I learned Basic and learned how read-write technologies worked I realized, "Oh, this is how to get on the other side of the TV screen!" You're actually writing the programs now—and on a level even deeper than writing a TV script. It was all programming. From then on, programming was both a reality and a metaphor for me. I was interested not only in the programs for what they could actually do as computer applications, but also in the very nature of living in a reality that could be—that had always been—programmed. Everything changed. The grid pattern of streets in New York City was revealed to me as an intentional design—a program

for maximizing speed, motion, and discouraging idleness. I looked at religion and economics and clothing and everything differently when I realized that these were all programs, too. They were social constructions that I had all this time mistaken for just the way things were—for given circumstances. All of them were all capable of being not only read and consumed like TV, but you could also *write* them like a computer program. Everything was a program and everything could be both read *and* written. So, the future—rather than being something that unfolds before us that we wait for the future instead became to me something that we program into being by what we write today.

BDJ: You have written a lot about the future in very different ways. You've not only written books and articles and given talks to audiences all over the world but you've made some really good documentaries too. Has looking at the future always been hardwired into your thinking? All the way back to your first book, you've been thinking and writing about the future. Is that just how you're wired?

DOUGLAS: Interesting the metaphor you choose. . . . *the way I'm wired*. But given you are a futurist at Intel I suppose that's an appropriate metaphor for humans.

BDJ: (I laugh) True but it's also from William Gibson. I'm completely showing my inner cyber-punk geekness.

DOUGLAS: *Just the way I'm wired, I guess.* (He laughs) I'm just as much a geek to be able to—to even *choose* to throw you back the reference.

(Geek side note: William Gibson is a science fiction writer who, in 1982, wrote a book called Neuromancer *that is credited by many as the quintessential cyberpunk story. In this book and Gibson's later writing he explores possible futures and he gave us much of the language we use today to talk about the Internet. I couldn't recommend Gibson's work and* Neuromancer *more—both as a work of futurism and history. The reference that Douglas and I are geeking out about comes from the character Molly Millions at the end of the book. She's an augmented street samurai and one dangerous lady. I won't ruin the ending for you. Douglas wanted you to have to Google it—I say you should read the book. Back to the conversation!)*

DOUGLAS: My interest in thinking and writing about the future comes from a different place than you might imagine. I'm Jewish—I was raised Jewish—and

Jews as a people have always had to keep their ears to the tracks and keep an eye on the future. My great grandfather got hanged in a pogrom in Kishniv. Think about it: we never knew when people might come calling and rape all the women, wipe out our town or throw us in camps or burn down our ghetto. Whenever the economic or political winds changed, it could spell persecution and mass killings. I feel like there's a certain futurism inherent to persecuted people, it's a self-preservation mechanism. For me, of course, it's not at all this dire. For me futurism is fun, but it is a part of my cultural bias, I think. Just like my interest in media.

Jews were not allowed to own land for the last couple of thousand years of European history, until very recently. So they became mediators, they became literally intermediators and money changers and translators. That's the real root of the Jewish connection to media. Plus, media connected the world together, and the more connected everyone is, the more cosmopolitan and accepting of perennial strangers like the Jews. So Jews have those two strands of culture and concern coming through either culturally or genetically, depending on your model of transmission. It figures that I would end up thinking about media and future trends. And it's a particularly good place to be today, when a new kind of media is about to reshape the future.

From an early age, I was fascinated by the way certain media enhance the authority of a storyteller. I came to understand this relationship between the content of a story and the technology through which it was being told when I was watching the movie Star Wars: The Return of the Jedi. No, it wasn't George Lucas's storytelling but, in true Renaissance fashion of frames-inside-frames, a story-within-the-story being told by his characters. Luke Skywalker and Han Solo have been taken prisoner on the moon of Endor by some cuddly little creatures called Ewoks. As our two heroes struggle helplessly with their bindings, their two robots tell the captors a story. C3PO, the gilded mechanical man whom the Ewoks believe to be a god, relates in fluent Ewok how Luke and Han are fighting against an evil tyrant. As C3PO tells the wondrous tale of their space battle with Darth Vader, R2D2 projects holographic images of the pyrotechnic assaults. The teddy bear-like creatures' eyes glow in the campfire as they are mesmerized by both the great story and wondrous special effects. By the time the two robots are done, the Ewoks not only release their captives, but fight a war on their behalf—a war in which many of them die. I couldn't help but wonder at that moment, what would have happened if Darth Vader had gotten down to Endor first and told his story with special effects? (Get Back in the Box. Douglas Rushkoff)

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BDJ: As you look out five to ten years, and keeping your eyes on the future, where do you see things going?

DOUGLAS: The big story of the next five, ten years is the realization that our economic operating system no longer functions. The economic program that we set down in the year 1300 or so has played itself out. You're not going to be able to make money with money anymore. We're going to move from a savings, investing and capitalist culture to something where people actually have to *do* something—where earning a living is the way people earn a living. The surest path toward the creation of value will be for people to *create value*.

That's a big transition and likely one that will be accompanied by a whole lot of pain and suffering. But we have a choice about how we get there. We can do it smoothly with people reinvesting in their communities and learning how to do stuff and educating ourselves and working together, or we can do it the hard way. That would look a lot more mean and angry and fascist and scary. I'm trying to remain hopeful that we can move from this place to the next one in a friendly fashion—that we can move into this unknown together, and teach each other how to do things and how to create value for one another. It doesn't have to be as ugly as all that. It could be fun. Like camp.

But as I spend time in places other than the universities of New York and Silicon Valley, I see a lot of different Americas, and many of them are not ready to embrace a society of learning, or a culture of sharing. Let me be clear, the change to our economy has happened. It's not like we have to embrace change in order to make it through. The change has happened; we just have to learn to deal with what we've wrought. In a lot of places I don't see a great readiness to do that. Unfortunately that means the next five to ten years are not looking to be that fun.

For the last 50 years corporate profit over corporate net worth has been going down. Companies have been getting worse and worse at making money with the money they have. They're still good at collecting money and sitting on cash, but that's all they know and all they are. I see corporations as big stockpiles of cash that don't know how to create value or make money with that money anymore. They've sold their productive assets for cash, and now they've hit up against a wall.

One way to measure the success of our new potentially decentralized and localized economy, would be to see that ratio actually get better. If corporations can start spending down, their net worth might go down but their efficiency would go up. If they start reinvesting in their enterprises instead of the stock market, then we'll start to see corporate profits over net worth as a metric that's

going up. That would be a healthy thing. Another way to look at positive growth would be to look at local reinvestment, decentralized value creation and how many local businesses and small businesses are starting up. How many people are finding ways to invest in what they see around them, rather than "outsourcing" their investment to completely abstract instruments related to companies very far away from them.

Even on the Internet and in our personal networks we could look for new signs of genuine peer-to-peer interaction. On one level it's really about trust. What protocols are people using to engender trust between one another? Are they utilizing genuine peer-to-peer protocols? Or are they going through some central approving agency? Looking at those kinds of things tells us whether we're moving into a world where people have the ability to engage with one another, or whether they still need a central authority in order to engage with other people.

BDJ: The future that you are talking about is very local but it's also very human. It's about people engaging with other people. What do you see as technology's role to play? What has it played and what do you want it to play?

DOUGLAS: I feel like technology's greatest role so far has been to create new excuses for capital investment. The story that generates the most excitement from the press and the people is always about some new commerce website or how much the newest social networking company is worth.

So we are focusing less on the technologies and their applications than we are on the business stories about these technologies—stories that are compelling enough to motivate a shift in capital from a bunch of investors' bank accounts into a bunch of other venture capitalists' bank accounts. The value of any of these devices or applications seems much more mythological than actual. That's troubling, because it means then that the evolution of our technology is driven more by short term market concerns than long term utility. It's much less about human evolution than it could be.

Listen, I'm not going to yell at anybody for not worrying about the future of our species. I mean that's way too much to expect of anybody alive today. But I do think we can look for ways to help people do something or achieve something real and meaningful, however small. Right now the real problem is too big for most people to ponder without freaking out and pondering zombie scenarios. It's just too unwieldy. Over the next five years or so we're going to have a lot of technological growth. Hopefully, some companies with deeper pockets like Intel or IBM or Microsoft could start asking themselves "What are the actual competing needs and transactional needs and security needs and

identity needs? What will people need five, ten years from now?" It's my hope that these companies who have an interest in our long-term future should start quietly building these things, rather than creating online coupon systems or focusing on which facial recognition routine will get you jeans of the right size or some other ridiculous and trivial marketing scheme.

BDJ: How do we get there? Is it a failure of our collective imaginations that we can only think of the trivial marketing ploys and not the real technological advances that will have a positive effect on people? Have we been given a steady diet of nothing when it comes to meaningful visions of the future and so that people don't even have the ability to think beyond the trivial?

DOUGLAS: When I was a kid around 10 years old it was still the end of the industrial age. We had this show called "On the 21st Century." It was a futurism television show that was on right after the *Wonderful World of Disney* on Sunday nights. The creators of the show were basically applying an industrial mindset to space-age and computer-age technology. It was always about *doing* something. The show didn't look at what the future meant or what it would mean to be human in the future. It was all about cool computer-controlled monorails that would get people from place to place. Or "here is the consumer grade jetpack that we'll all be using to get to work." It was all great stuff.

At that age I thought "we're going to have buses to the moon."And let me tell you I'm truly disappointed we don't have them. I still want my jetpack. When I was a kid I watched another show called *Lost in Space.* The show was set in the far off future year of 1984, when we'd be colonizing Alpha Centauri. It was supposed to happen but it didn't.

But we never fully translated our economy to our emerging technology. In the industrial age with industrial technology, we ended up with an industrial age economy. That was as centralized as the technologies we had invented. Mass production and mass marketing and mass media. They coincided very well with things like a stock exchange and centralized capital and big banks. It was all about growth. The technologies we have now make the central economy smaller and value more distributed and more decentralized.

Today everyone can have computer chips and technology in everything; we can have every language in the back of our heads and every font in a chip in our finger. When all of this potential to create value is distributed so widely, a centralized economic model no longer makes sense. But we lack the imagination to see beyond the inherent restrictions of the centralized, corporate-biased economic operating system that's running under our digital innovation culture.

Most of the innovation of the last few decades came from a bunch of hackers in garages and the former hippies in San Francisco—people who weren't tied to our current economic system. They were making stuff for reasons that seemed so obscure that AT&T didn't even want to buy the internet for a buck when the government offered it to them. Now *that's* a failure of imagination!

> *We are fast approaching a societal norm where we—as nations, organizations, and individuals—engage in behaviors that are destructive to our own and everyone else's welfare. The only corporate violations worth punishing anymore are those against shareholders. The "criminal mind" is now defined as anyone who breaks laws for a reason other than money. The status quo is selfishness, and the toxically wealthy are our new heroes because only they seem capable of fully insulating themselves from the effects of their own actions.* (Life Inc: How the World Became a Corporation and How to Take it Back. Douglas Rushkoff)

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The Tomorrow Project is an ongoing endeavor to get people to think about their future and then have conversations about it. Douglas wrote a story for the project that was in a previous anthology (see The Tomorrow Project at http://techresearch.intel.com/newsdetail.aspx?Id=30); a science fiction story based on science fact that envisions a really interesting future. I asked him what was his motivation for the story and what future was he thinking about?

DOUGLAS: For my story, *The Last Day of Work*, I was actually responding to the speeches that President Obama happened to be giving that week I was writing it. He was going around America saying he was going to *get America back to work. It's about jobs, jobs, jobs.* The main thing he said he wanted to do was address the employment problem and get everybody employed.

> I was listening to him and thinking: *Well, I don't want a job. Is that what America really wants? Everybody really wants a job? I think people may want money, and they definitely want a house, they want food, they want a sense of purpose and maybe they even want a way to create meaning or value. But does everybody want a job? No, I think most people probably don't even want a job. Most people would rather not have a job, and have everything taken care of.*

Then I got to wondering: *Why are we working towards that?* I started thinking about history. *When did jobs start?* Jobs started around the early Renaissance when local business was declared illegal in one way or another by

late medieval monarchs who outlawed local currency and granted corporate charters. The chartered corporations enjoyed exclusive province over their industries. These charters made it impossible for anyone to make money any other way except by working for one of the chartered companies.

So the whole idea of a job, not just working and doing but *employment*, is actually fairly new. Except for slaves, most people didn't work for other people. People had their businesses. People did stuff. People had crafts. People made things and traded them with other people.

For me, *The Last Day of Work* was really a way to address people's failure of imagination. The story imagines what we could do with technology. It asks, why don't we create a world where no one has to have a job?

There are lots of examples of science fiction stories where we have genetic engineering so that we have endless food and fuel. There are stories where robots do all the work; but I wanted to ask, what do we do with the *people*? The real problem then is not that we can't imagine technologies to do any number of tasks but that we can't imagine how to distribute the spoils. We can't imagine an economy where work doesn't exist. If we made some technology or machine that could just farm and give everybody all the food and water and stuff we needed, we'd go insane. We wouldn't know how to deal with it. The powerful people wouldn't be powerful anymore. Everything would change.

So, in my story I wanted to ask whether we as people are ready to accept what these technologies can really offer us, or are we stuck in the trap of just continuing on our current vision no matter what technologies we develop. Most "real" science fiction writers today, certainly those in the cyberpunk genre such as Bruce Sterling or William Gibson—would say that we don't. That human nature does not evolve along with our technology; we just have more powerful ways of doing the same bad stuff to one another. But I don't believe that. I have to make myself believe that human beings can evolve along with the stuff that we make, that we can keep up with our technologies and even keep them human.

I saw The Tomorrow Project as an opportunity to make a contribution about something less technological than social and interpersonal. I really wanted to explore our individual and collective obstacles to participation in what I believe is the great decentralized network being that we're moving toward—or that we could move toward. What are the problems? What is at the core of our resistance? Is it just systemic inertia, or is it something deeper? Is it that our egos won't let go of what we know and are comfortable with? Is it our obsession to the notion of individual ownership and recognition, or our need

to stand out as different than our parents or to conform to some self image? Ultimately, is it our notion of self and who we are? Can consciousness survive if we surrender the boundaries between our separate selves?

People are going to have to get over what it means to be an individual as it's currently conceived. We're not individuals. That's as simply as I can say it: we're not. We're going to have to get over this false notion of individuality or the machines are going to get over it *fo*r us. And that's not going to be as pretty.

> *In the emerging, highly programmed landscape ahead, you will either create the software or you will be the software. It's really that simple: Program, or be programmed. Choose the former, and gain you Access to the control panel of civilization. Choose the latter, and it could be the last choice you get to make.* (Program or Be Programmed. Douglas Rushkoff and Leland Purvis)

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BDJ: What would be your request of the future?

DOUGLAS: Honestly, my one request would be that I get to be there, as awareness. It sounds selfish on a certain level, but I mean that everybody gets to be there—that we get to be aware. But my real request of the future is remember the humans. Let humans participate in it. I understand we've got a lot of problems but try to make a place for us.