

# CONVERSATIONS

WITH BILL KRISTOL

## Conversations with Bill Kristol

Guest: David Gelernter, Yale University

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### **I: America-Lite (0:15 – 19:25)**

KRISTOL: Hi, I'm Bill Kristol. Welcome to CONVERSATIONS. I'm very happy to have with me today David Gelernter, Professor of Computer Science at Yale, author of – brilliant author on so many topics, ranging from art to education, to Judaism, to America.

Let's begin with America. Your most recent book is called *America-Lite*. Why is America "Lite"? Was it ever heavy? I mean, haven't people been complaining about America-Lite for 200 years?

GELERNTER: I guess they have, they're never ever any shortage of complaints. And it's true. It's something one really has to keep in mind that any generation looking back is likely to be wistful and nostalgic on how great it used to be. Of course, we've made progress in a million ways. How about dentistry? An obvious example. We're so much wealthier in the middle class; we take this for granted, but I think of my parents' generation, the middle class has made enormous progress.

But *America-Lite*. I'm a teacher of college students. I'm lucky to be at one of the best colleges in the world, at Yale. Our students are as smart as any in the world. They work very hard to get here. They are eager, they're likable. My generation is getting a chip on its shoulder, we always thought we knew everything about every topic, our professors were morons, and we were the ones who were building the world.

My students today are much less obnoxious. Much more likable than I and my friends used to be, but they are so ignorant that it's hard to accept how ignorant they are. You tell yourself stories; it's very hard to grasp that the person you're talking to, who is bright, articulate, advisable, interested, and doesn't know who Beethoven is. Had no view looking back at the history of the 20th century – just sees a fog. A blank. Has the vaguest idea of who Winston Churchill was or why he mattered. And maybe has no image of Teddy Roosevelt, let's say, at all. I mean, these are people who – We have failed.

So *America-Lite* – what's the problem? The problem is – the incredible richness of American civilization in the years after the Second World War, the generation after the Second World War. When we were creating such extraordinary art and painting, such extraordinary science and mathematics and engineering. Such extraordinary music. Gershwin – we were still in the Tin Pan Alley generation of Gershwin and Kern, and Cole Porter. Leonard Bernstein was the first American born maestro, and his young people's concerts were broadcast by CBS, coast to coast. We were – people were excited about novelists. When Hemingway did something, shoot himself, it was front-page news. People knew and

cared. They knew who Picasso was. He was a celebrity. They knew who Matisse had been. They heard of Jacometti, they cared about Chagall. Chagall was a big celebrity in the United States.

People were excited about culture and, for the first time, the arts. They were interested in science, too, but the arts were reaching not merely the educated and wealthy elite, but the broader middle class. There was an air of excitement about the arts and science. About the universities, about American culture. The American civilization when America art, American science, American engineering, American architecture could do. This was a generation of Louis Kahn and Frank Lloyd Wright, two of the dominant architects of the last 300 years.

So much was happening, it was so exciting. There was such a variety of great artists, of great art. And today, how have we gotten to this empty reservoir when we were overflowing with excitement about the intellect and the spirit of mind?

The religious community was part of that discussion, also. People knew who Abraham Heschel was. They had some idea of leading – won't even get into that. But liberal protestant theology was well known and was discussed. The ferment in the Jewish community, was in some interest in Jewish culture, was starting to make inroads on American culture. People cared about what Yiddish was – and anyway how did we get to this point today when my students know nothing?

They know nothing about art. They know nothing about history. They know nothing about philosophy. And because they have been raised as not even atheists, they don't rise to the level of atheists, insofar as they've never thought about the existence or nonexistence of God. It has never occurred to them. They know nothing about the Bible. They've never opened it. They've been taught it's some sort of weird toxic thing, especially the Hebrew Bible, full of all sorts of terrible, murderous, prejudiced, bigoted. They've never read it. They have no concept.

It used to be, if I turned back to the 1960s to my childhood, that at least people have heard of Isaiah. People had heard of the Psalms. They had some notion of Hebrew poetry, having created the poetry of the Western world. They had some notion of the great prophets having created our notions of justice and honesty and fairness in society

But these children not only ignorant of everything in the intellectual realm, they have been raised ignorant in the spiritual world. They don't go to church. They don't go to synagogue. They have no contact – the Americans. Some of the Asians are different. Some of the Asians – and, of course, the Asians play a larger and larger role. But I think, from what I can tell, the Asians are moving in an American direction, and they're pulling up their own religious roots.

But when I see a bright, young Yale student who has been reared not as Jew, not as a Christian, outside of any religious tradition, why should he tell the truth? Why should he not lie? Why should he be fair and straightforward in his dealings with his fellow students? He has sort of an idea that's the way he should be, but why? If you challenge him, he doesn't know. And he'll say, "Well, it's just my view." And I mean, after all everybody has his own view.

KRISTOL: So we began in the 50s, and now we're 60 years later. How did this, what were the big break points in your judgment from "Serious America" to America-Lite?

GELERNTER: It seems to me something happened. There was a historical event, which needs to be understood and recognized more clearly than it is. The cultural revolution in the United States, which people take for granted. If I tell people there was a cultural revolution, yeah sure, there were a lot of changes in the 60s. But it's more than that. It's a double change.

Colleges and universities. Let's look at the generation after the Second World War. This is a cultural revolution, it seems to me to extend roughly from 1945 to 1970. So in 1970 everything is different. Things

are radically different. And what happened during those 25 years? Colleges and universities became vastly, vastly more influential on American culture.

Journalists didn't use to go to college. I mean, they could have if they wanted but some of the very best did not. A lot of highly intelligent people in highly influential professions, in the movie industry, people didn't go to college. Loads of people didn't go to college. You didn't have to go to college to be a businessman. Some businessmen did obviously but lots of people did not. So the influence of colleges was limited to the upper classes. The upper-middle classes.

But in the generation after the Second World War there was an academicization; suddenly everybody had to get a bachelor's degree. It was just self-evident that everybody had to go to college. And professional schools, journalism and education. Teachers didn't have to go to ed school. Journalists didn't have to go to J-school. Businessmen didn't have to get an MBA. But suddenly all these professional schools. Not suddenly – they had existed before the war. There were journalism schools and education schools, but they were not terribly important. They were theoretical centers.

But after the war, suddenly, you had loads of journalists going to journalism schools so what Yale and Harvard taught them, Columbia, you know, matters a huge amount. Loads of teachers going to ed schools. Loads of businessmen getting MBAs. And so in this generation, American's colleges and universities become much, much more influential than they've ever been before. And during the same time, I think the hardest kind of historical phenomenon to grasp are ones where there are two parallel processes working together.

At the same time, the universities were taken over by the intellectuals. The leadership of Yale is a dramatic example. Harvard, too, slightly less dramatic. But Yale and Princeton were created by WASPs, by white Anglo-Saxon Protestants. Most of them wealthy or at least wealthy-ish. They sent their children there. And they were run by WASPs who also built them. Who built the buildings, who donated the money, who donated the time to meet trustees.

They were WASP institutions, they were run by WASP businessmen, basically. But the idea suddenly that the professors at Yale and Princeton and Harvard should not be just generally WASPs with an occasional Jew but should be absolutely world-leading superstar thinkers. The best scientist. The best historians. This meritocracy, which we got very excited about and speaks very well for us as a nation, obviously.

But intellectuals are abysmally bad at running institutions. The idea that the President of Harvard or Yale should be a professor would have struck the WASPs of the 1920s as idiotic. I mean how, unless it's really a socially serious professor who's a member of the club, who gives his daughter a wedding in the right Episcopalian church.

These people were prejudiced but they knew what they were doing. They knew how to run an institution. I as an intellectual am an idiot at running institutions. Not my field. My field is to think and to write and to do whatever. But not to run institutions. I'm not a businessman, I'm not an organizer. I'm a lousy person to run an institution. Now, I never will but the people who are running Harvard and Yale and Princeton are unfortunately too much like me. Are not as different from me as they ought to be.

They're running the university down. They're turning them into political instruments, as we all know. Now, the universities were always to the Left of the general population, at least throughout the 20th century, but they never used to be hard Left, and they never used to be propaganda sellers.

I mean, in the Second World War, America looked to Harvard and Yale and Princeton for its officers, obviously. Undergraduates were – there were close relations with Yale, particularly the State Department and the CIA, and Harvard, of course, had all sorts of political connections, and Princeton, too. But this idea of what you owed to the country. What you owed to the country, a Yale man, a privileged – he has

all sorts of white privileges, male privileges, WASP privileges. What the hell. On the other hand, he also has obligations and duties; when the country's in a war, he feels an obligation. He feels an obligation in general to the country, to – it's his country. Wants to do his best for it.

The Yale – there was a book published – I don't know a long time ago now – *Harvard Hates America*. We all know it's true. Yale hates it worse. Princeton worse. Berkeley, Stanford, you know.

KRISTOL: What was the key? Was Vietnam the snapping point?

GELERNTER: Well, I think you saw these two processes just during the generation in which the Yale's and Harvard's and Stanford's became vastly more important than every before, because now everybody has got to get a BA. And journalists have to go to journalist school, and businessmen and teachers and all these guys. Law's a bigger profession than ever before. Medicine, suddenly doctors are making much more than anybody else – there was a period during which going to medical school was a frenzy.

And during this same period, universities were being taken over by intellectuals and moving hard to the Left. Intellectuals have also been Leftist, have always been hard to the Left. So the dramatic steer to the Left coincides with a huge jump in the influence of American universities. We have a cultural revolution. And the cultural revolution is that we no longer love this country. We no longer have a high regard for this country or for the culture that produced it. We no longer have any particular feelings for Western Civilization.

KRISTOL: All traditions are called into question, to say the least, you know.

GELERNTER: Exactly. The Judeo-Christian tradition means nothing to us, except in terms of hostility. And we have a generational shift so that when we start in the 1970s and 80s, suddenly public schools' and college teaching went way down. Deteriorating. There was that famous report in the 1980s, mediocrity, saying mediocrity in the schools. In 1983 or something like that.

So the schools were failing to teach but at least the parents had been educated before the cultural revolution. You know, they'd been educated in the 60s and the 50s, some by the 40s or the 30s. So they – When their children were taught garbage, when their children were taught nonsense, when their children were taught outright lies, at least the parents could say, "Hold on, not so fast, are you really sure about that?" Or "You know, there are Republicans in this country, too." Or, "You know, we've tried those policies, and they created catastrophes. Are you sure we should do this all again?"

But what happened in – as we move out of the 90s and into the new century – the children educated in the first generation of the cultural revolution in the 70s, in the 80s, in the 90s, those children are now the young teachers. And then the not-so-young teachers. And they're the parents.

And so the children who were being taught nonsense and garbage and lies in school, instead of going home and having the parents say, "Well, wait a minute, this is really idiotic, by the way." The parents say, "Yeah, that's what I was taught, too." You know, the same.

KRISTOL: The second generation.

GELERNTER: So we have second-generation ignorance is much more potent than first-generation ignorance. It's not just a matter of one generation, of incremental change. It's more like multiplicative change. A curve going up very fast. And swamping us. Taking us by surprise.

KRISTOL: And it seems to me – and of course, everyone has his own and so much prejudice is based on where and when you grew up and so forth – but what strikes me is the difference – I mean, people didn't know much honestly in my generation or probably our parents' generation.

I mean, there was a lot of faking it. A lot of what was then this middlebrow culture that was kind of vague knowledge of the name of an artist but not really knowing anything about his work. And in some ways the critique, at the time, the whole middlebrow thinking was anti-intellectual, people were almost complacent in it. But there still was this sense that you should know about X, Y, or Z. And it would be good to know more but you're a busy person so you can't have time to learn a language or to read or think but you admire the people who do.

What strikes me today is – correct me if I'm wrong – is there's not even that sense of lack or of not knowing or knowing that you don't know or admiring the people who really know. It's almost not even a sense of what it would mean to really know something. Is that exaggerating?

GELERNTER: I think that's exactly right. It's certainly not the case that my education in the 60s and 70s, was anything to write home about. It sort of overlapped the cultural revolution, but a good deal of it was before. My parents often said, "Well, you mean they're only teaching you that, they're not teaching you this?" My parents themselves complained about the education they had gotten: "We wish we had studied this, we wish they had taught us that."

But what we used to do and, for example, art education has always been a joke. Music appreciation was never taken seriously. But what we used to do was, at least, expose students to things that they might be excited about, that their own minds would propel them into. So they would know nothing about Beethoven in any deep sense but they would have heard a phrase from the Fifth Symphony, they would have heard a phrase from the Ninth Symphony or the Moonlight Sonata. Doesn't mean they know Beethoven, but it means if they love music, the door is open, they have some concept of what culture is.

If you are the sort of person who responds to painting or who loves history or cares about writing or poetry, you still know it's there.

KRISTOL: You have a sense that maybe you should want to know more; then if you have a taste for it, you then actually learn more.

GELERNTER: It's a good thing to care about these things.

## **II: Computers and the Internet (19:25 – 35:01)**

KRISTOL: How did you get into computer science? What do you do as a Professor of Computer Science? What do the rest of us need to know about computer science?

GELERNTER: Those are very good questions, and I think the field itself is deeply confused. Computer science was invested as an academic field recently, as academic time is measured, it was during the 1970s that universities decided there's computing computational mathematics is not the same as normal – computing has its own mathematics, its own engineering, its own body of theorems and knowledge and engineering. It sort of slides constantly between mathematics and engineering, without stopping at natural science in the middle. It's sort of strange in that respect.

But it used to be a very rigorous field. Difficult field, difficult major. Famous for how hard you worked and how many people flunked and stuff like that. But it was created before there was a software industry. In the 1970s, there were people with home computers. And now that software is the most important economic phenomena of the time, computer science departments really don't know what they're supposed to be doing.

Are they still like a special kind of esoteric applied math where you prove theorems about what functions in principle can be computed, or how hard – Yes, you can solve this class of problems but if you took all the computers on earth it would take 300 billion years.

So that's not a practical solution. Computer science used to be focused on that kind of general question: "Can we solve this problem? Can we not solve it?" But now we have undergraduates who say, "We want to be billionaires immediately. And you know, we want to be tech industry giants. And we want to know practical stuff about programming, and also we want to know about how to raise money, and A rounds and B rounds." And stuff like that. And computer science sort of doesn't want to be left out; it wants to respond to student demand.

Every department at every university wants to have a lot of students taking its courses, but computer scientists are trained in a rather austere, rigorous, smug profession. And they're not quite sure they want to, they want to lower their sights to deal with the masses on things that people actually want to do.

What is it? On the one hand, a body of knowledge? Sort of mathematical in character, and with some beautiful theorems. There are some extraordinary, brilliant people in the field. On the other hand, an economic phenomenon, unique in history? I mean, software is new kind of stuff.

KRISTOL: Let's talk about that. So what about that? I mean, leaving aside the academic discipline, the computing revolution. It's the biggest thing ever, it's huge, it's transforming the world. All the people – come on, you get access to information little faster, but at the end of the day, we live the same lives.

Where are you on that spectrum? You've written a lot about this, you participated in that revolution. And thought a lot about it. Simplifications are – I think you're not simply a champion on it – so where do you come down?

GELERNTER: On the one hand, I'm sort of proud of the world of computing today. We did a lot of early stuff in a lot of areas that you see now, we certainly built the first cloud. I don't know if I agree with John Brockman that I was the first to use the term "cloud," but he says I am.

KRISTOL: You should take that.

GELERNTER: I think he's probably wrong but we did build the first cloud. There's no question that our work on parallel computing in the 80s led directly to the parallel search algorithm that underlies a very large company that has had a very great deal of success searching the Internet.

My book, *Mirror Worlds*, published in '91, is said to have forecast the Web. It sort of did. It did lead directly to the development of the Java programming language at Sun Microsystems. It's sort of the Internet programming language. And we built Twitter, we built the first social network in the 90s and a system called Lifesteam. The first blog on the internet was built on our Lifesteam system at Yale; it happened to be by some female graduate students on women in computing which is sort of exactly what you'd expect it would be. Which is fine, they were very good students, and it was an exciting development.

We had Twitter in 1999. It's all patented, and all it's led to is endless litigation. The litigation will probably go on for 50 years after my death, or you know, 55 centuries. But I'm proud. I'm proud that the field has been ambitious. When I published *Mirror Worlds* in 1991, I said, "In ten years, you'll start seeing the first twinkling of something like the Web." I called it a mirror world.

My view was that the Internet would be like a mill pond in New England. A still mill pond that mirrored the town around it. So that you could look at the Internet and see reality. I said, in a sentence, you'd be able to see the whole world without changing out of your pajamas. And in fact, the problem, what was wrong with the book is that it was too conservative. Which was an appropriate mistake for me to make. The Web was exploding by 1994, whereas I'd said, by the early 2000s.

So I'm proud of the ambitiousness of the field. I'm proud of the fact that venturesome ideas have been funded by imaginative rich people. I'm not rich myself, but I admire the fact that, admire the

aggressiveness and ambition of many investors who when federal-funding bureaucrats would begrudgingly give you an appointment to go down to Crystal City and talk to them, an aggressive investor will get on a plane and come to New Haven and say, you know, “When do you want to make the meeting?”

This is a night-and-day sort of thing. And I think the field has moved in a good direction, technically. On the other hand, why is the Internet dominated by garbage? It was from the very beginning. People saw the Web – not the Internet, I mean, the Internet goes back to 1982, 1983. Built on the ARPANET going back to the late 60s. But the Web emerging in '93, early in '94, its first killer app was pornography, and today it brings out the worst in people. If you look. I try not to look.

The average comment or the average blog posting, the average thought expressed on the Internet, people descend to the bottom of their characters for some reason, because nobody watching them. They don't seem to be conversing with anybody.

There is so much that could be done, and that I hope will be done, in an era of painful ignorance, with an education system in a state of advanced cardiac collapse. The Internet is the tool that has been given us almost miraculously, in a *deus ex machina* sort of way. To do something about the terrible ignorance of our young people. We're not doing it. We're not using it. I wish we were.

So on the one hand, you know, congratulations to all these billionaires. I envy them, it's not that I don't. I envy them, but I also respect what they've done. I'm glad that they've done what they've done. I think we, our work in computer science has been an extraordinary, extraordinarily productive economically force for good in the sense of creating jobs, creating wealth. And pushing new ideas.

On the other hand, the rest of the world is so passive. Looking at technology, it's like, “I don't understand it, I don't want to understand it. I don't want to know anything about it. Please don't teach me anything about it.” I don't want – stop the average Yale student and say, “What is the Internet? Where is it? Point to it? What is it? Who pays for it? How does it work?” Knows nothing, cares nothing. What is software? What are these apps that you download every day that you make such a big deal about? How do you build them what do they look like?

It's passivity. This is the nation that, if you go back to my father's generation, way back before the Second World War, when he was a small boy, or during the war, a generation, a nation of people who would take their cars apart. Certainly, the young men would, and certain young women would, too.

Would take their cars apart and figure out how they worked. Would take their radios apart, you know, would care and would be fascinated by airplanes. This was an engineering nation. That was what the national was famous for. Today, we are a nation of extremely passive people who want to be lawyers, except for a tiny group of technologists, most of whom want to be billionaires. The small fraction of the fraction, which really care about technology, are referred to as geeks, nerds, you know, or generally regarded as morons, losers, and generally, misfits.

That's really stupid. That's a stupid approach to life.

KRISTOL: Have we seen most of the technological breakthroughs? Are we going to be – I suppose it will get faster. Fewer glitches. Is basically, 15 years from now, are we going to be sitting at and using devices that look sort of like devices we use now and searching the Web, more or less, the way one does now?

GELERNTER: I don't think so. I think, the Web is a chaotic mess on purpose. I mean, what is a spider web? It's chaos. We're not talking about an orb web, you know, one of these rare beautiful, not rare, but we're talking about a cobweb. It is literally, the Web is. There's no way to picture it. It is un-pictureable. It's just chaos. There's no way to know your way around it. There's no way to get the big picture. To make an estimate or judgment or evaluation.

I mean, I can go to the biggest city in the world, to the best or the most exciting city, New York, Paris. I can go to whatever I want, and go up high and look at the whole city and get a feel for how it's laid out and what the big major areas are. The neighborhood streets and stuff like that. I can't do any of that with the Web because it's the Web. I think we're going to see a transition to a time-based rather than space-based system.

A huge, fast-flowing very, very rapid stream of information so that the Web, instead of being a static collection of points wired together, it's going to more like an electricity network that flows. You plug in and you withdraw current from the network. What we've seen in our lifestream paradigm, which was considered bizarre in the 90s, but is now a Twitter stream or a livestream or a Facebook feed, a Facebook wall. There are a million activity streams, chat streams, stuff like that, people's blogs.

People want to know what's new; that's why they go to the Internet. They want to know what's just happened. I think we'll see the old Net being absorbed in a rapidly flowing gigantic river of stuff, and you can focus on the little trickle of that that you care about. And essentially you plug into this huge rapidly flowing stream with your stream browser and you focus on the collection of particular streams that are of interest to you and you blend them together and you have something that is just as dense with information as the Web today but can be easily comprehended as a whole instead of being an inscrutable, unknowable vast mystery.

Is the Hudson River only a cyber-river flowing much faster? I can understand where it is. I can understand where it was a month ago, I can go back. It has a future in the sense that it tells me what it's expecting next month and three months from now and stuff like that. Absorbing TV broadcasting and all sorts of broadcasting into the stream. I think that's what we'll see. Certainly not immediately, 15 years maybe from now. I think we'll see big changes.

We'll also see enormous ethical challenges because we hear what the Kurzweils are telling us they, the transhumanists, so-called. Maybe I don't want to say Kurzweil. Let me say, there are such people who enjoy calling themselves transhumanists and are looking forward essentially to abolishing the human race by liberally implanting chips in addition to messing with the genetics of unborn infants.

So you can, you know, buy 10 extra IQ points for your first kid, and technologies always improving so with the same amount to money you can get 15 for your next kid, and your first kid will be obsolete and you can, you know, send him to a big parking lot in the desert for obsolete children. And meanwhile you're building human beings whose IQ is, you can build them. A person with an IQ of 500, why not build one with an IQ of 10,000?

KRISTOL: And you don't think all that's crazy? I mean, you think that's not – maybe crazy ethically.

GELERNTER: Maybe not as crazy as I wish it were. It's not as out of touch. It's not as out of reach. I think we do have it within our powers, not to go as far as the transhumanists say, but we do have it in our power to wreak havoc with mankind.

And I wish more people were paying attention to this. Because as it stands now, it's entirely up to the technologists what kinds of experiments they want to try, what kind of things they want to do. They're ongoing discussions with medical people about implanting chips, and some of these are benign or brilliant experiments for people who are disabled or have problems and more power to them.

But there's the darker side of that which says let's improve. Human beings are not such a great design, why should we live to 100 when we can live to 1,000? Why should we have an IQ of 100 when we can have an IQ of 1,000. We're moving there, and that's the end of mankind. You know, what are we to a group of people whose IQ is 10,000? Houseplants. This is a real issue.



### III: Technology and Education (35:01 – 42:48)

KRISTOL: We've discussed the problems of the universities and the education system. We've also discussed some of the dire possibilities that could come out of modern technology, and yet at the end of *America-Lite*, as I recall, you are somewhat hopeful about technology and Internet as – *solution's* too strong – but as a way out for at least some people from the dead end of the current intellectual world and educational world.

So you're both – well, just explain. I mean, I myself sort of have to come to this conclusion even though I'm not actually – I'm generally skeptic about the redemptive possibilities of technology but I've come to that conclusion, too, but you've thought a lot more about it so –

GELERNTER: I'm optimistic despite the fact that, it seems to me, the education system is the most important fact about the country and the culture. It receives way too little attention in our political discussion, in our political debate. We like to ignore it. And it's a ruin, it's ready, we should scrap it. There's nothing salvageable about it.

Except for the top research universities are doing very good science and medicine and technology. There's been no question that the technical side of things at many universities are doing well but that's not education. And there's no question that the top universities give students their money's worth, not in education. It seems to me Yale graduates, Harvard graduates have never been more ignorant. They know nothing about anything, except maybe their major to a very limited extent. But the Harvard degree gets you a job, the Yale degree is negotiable.

You know, we charge outrageous sums, but they're worth it. The very top universities will survive, and the rest are useless. I'm optimistic because we have this tool. We the right tool for the occasion and the Internet. Basically, I hate the idea of Internet education.

KRISTOL: You wrote a price for us, I remember, like 15 years ago, criticizing the fashionable, entrancement with computers in the classrooms. Do you remember this?

GELERNTER: There was actually, even before that piece for *The Standard*, when Gore was Vice President, he was selling this idea of Internet in the schools. Every school needs the Internet, and *Time Magazine* said, "We're going to have a debate where Gore will write why you should have the Internet," and I was going to explain why it was a stupid idea. And I said something along the lines of you can only teach somebody something if they're looking face to face, looking in the eyes. If you're not, you can't. And I said a lot of things that I still believe.

That is that education by human beings is so immensely superior and that the idea that our schools were failing because children didn't have access to enough information. All we had to do is walk into their libraries and read some books. I mean, you know, they had newspapers, they had video apes and cassettes, they were growing in information. And they knew absolutely nothing.

And it was a particularly ignorant idea that plugging all the schools in was, you know, a wonderful idea. However, in desperate times, desperate measures. The Internet will never be as good as a good teacher, but it can be made to serve.

If we completely change our idea of what an Internet course is and we create a new class of a person, of jobs, of careers. I think the two together can work. Internet courses need to be and can be very different. I don't want to go into the details of the software but most Internet courses are basically videotaped lectures and they have other stuff, but the other stuff doesn't really mean anything.

Completely no good. I mean, I need to have a top-down view of the course. I need to be able to look at a course and understand before I commit myself to it exactly where it's going, what the sequence of

lectures is, what topics I can skip. Maybe I should start in the middle. I need a top-down view. I always need, in the world at large, I need to see the big picture. But I also need the course to get better every time anybody takes it.

I need there to be a button that works like the, like the emergency stop handles on the New York subways. Something really happens, pull them. Everybody always wishes he had a chance to pull these things and bring the train, you know, to screeching to a halt. Would it work? It probably wouldn't work. But online courses need something like that so if I hear something I don't understand. Lectures are generally a really bad way of conveying information because they go such faster than most people can take in the information. They need to press a button, and the lecture stops, and I need to be able to ask a question of a TA or somebody, of a human being online, or if I prefer, type a question and get an answer back.

And so at every point in the course I need to be able to point to that exact instinct and see commentary around it. Questions that have been asked. About that phrase, a proof, about that assertion, about that battle description. See what questions have been asked, what response have been given so that every time a person walks through the course, like you're carving your initials in the forest. You're enriching the course.

Much needs to be done and much can be done to make Internet courses better. They will never be the smallest fraction of an inspired teacher but they can be much better than they are now. But what I think we also need to see is several things at different levels. We need to have the idea of an elementary school classroom, which is basically just a bunch of computers where the children are altogether not because they're the same age but they're all the same neighborhood. They know each other.

And they're all doing their work following their Internet courses, and the adult at the front doesn't have an ed school degree but is somebody who's known in the neighborhood, as probably an older person with a certain amount of judgment, with a certain amount of maturity – if a kid gets upset about something, he doesn't know what to do, if a machine breaks or he hurts himself – can do something reasonable and responsible, can keep order, can say, "It's recess. Now, everybody eat lunch."

And this person is chosen for his ability to do that rather than an ed school degree. I think that could work. I mean, the way it would work, to begin with, is, of course, in the context of existing schools. You take one classroom – I mean, how are you going to deal with all the teachers? Just one classroom, just a small experiment. But I think that way could grow.

KRISTOL: So the actual education comes online.

GELERNTER: The actual education comes online.

KRISTOL: The actual phonics, the actual addition, subtraction, multiplication, the actual geography, whatever the elementary school subject is.

GELERNTER: Right. It's on the screen, and each kid has got headphones and a microphone. It's on the screen, and when he pushes a button, he talks to a real person using, you know, Skype or Google or something, he sees the person there and we get rid of this as fast as we can. We go back to real teachers, but it will take a generation.

#### **IV: Art and the Art World Today (42:48 – 58:16)**

KRISTOL: You're a computer scientist, you're a brilliant essayist, commentator, and student of America, Judaism, of so many other things.

But art, I think – I really want to ask you about art because I think you wanted to be perhaps – if I remember reading this – an artist when you were growing up and you are an artist. So let's talk about art

a little bit. About your own personal interest. Engagement with it and lessons from it.

GELERNTER: I could draw before I could write. Drawing and coloring with crayons and making pictures has always been the way I worked with the world. Many people think in pictures, it's something that isn't understood as well as it should be. But I grew up assuming I was a painter.

Studying as a child, my parents got me lessons and stuff like that. Studio courses. I grew up in a time, in a wonderful time for art. In a time where art had exploded in a remarkable way. In Europe, the greatest artist of the century, who was the greatest colorist in 500 years, Matisse, had died not long ago, and his works were still all over, and he was understood to be an eminent master. Jacometti was probably the most – Jacometti who died in the last 60s – was the most revered man in the art world.

Picasso, of course, was an institution. But these were great artists, extraordinary artists. Chagall was an institution. He was an extraordinary colorist, too. We're going to see a huge Chagall revival before long. But these were the men who created a genuine revolution in art. Not that the preceding age of art hadn't been a great age in itself but we'd gone through an extraordinary period of brilliant art in the United States.

The age of Winslow Homer, in Europe, and then we come into the 20th century. Things had exploded, but in the United States – the United States created Abstract Impressionism, and the work of a de Kooning or a Pollack or a Hoffman or a Rothko – these were sensually brilliant. When you stood in front of these canvasses, they swept you away.

They were gorgeous. They still are gorgeous when you can see them. It is a strange peculiarity of New York that it has no museum of the New York School. There's not a place you can go and see these paintings. MOMA owns a lot of them and keeps them in the basement. The Whitney owns a lot. You know, a lot of them are owned by public institutions but you never see them. But this was also, this was also an era in which there were artists who had nothing to do with Abstract Expressionism but were extraordinary artists.

Joseph Cornell, I would call him the greatest sculptor of the 20th century, except he's not exactly a sculptor, he's a collagist, a three-dimensional collagist. It's impossible to describe. Stewart Davis, one of the great Cubists, except his Cubism is entirely idiosyncratic. When I was a young teenager, the Metropolitan Museum in 1970 put on a show called "New York Art: 1940 through 1970" that I went to sort of every day.

I mean, we went – we lived in Long Island, and it was easy to get on the Long Island Railroad and walk uptown and take the bus up Madison Avenue and it was – why was it such a brilliant show? Because it had gorgeous Abstract Expressionist paintings, but it also had beautiful Stewart Davises. Remarkable Joseph Cornells. It had Hoppers. Which had nothing to do with anything but you have a brilliant career that is entirely idiosyncratic.

And in 1970, Pop Art had emerged in an amusing way. Andy Warhol didn't take himself seriously. Now, he was a clown, he was a joker, he was an entertainer. Picasso said himself towards the end of his life, "A great artist? I'm not a great artist. Velasquez was a great artist. I'm a great entertainer." He came to the truth at the end. He threw away one of the most extraordinary talents in the history of art.

But you, but the Pop Artists, the very first generation were serious artists. Rauschenberg especially, Jasper Johns. Jasper Johns was one of the most brilliant draftsman of his generation. Brilliant colorist, extraordinary painter. And the new Pop Artists of the 60s, the Warhols, the Claes Oldenburgs.

The – well, there's such a long list. The point is, on the whole – there were some exceptions – but on the whole they didn't take themselves seriously. Lichtenstein was famous for his comic-book-like things. Warhol was famous for his Campbell's Soup cans. Oldenburg was famous for his gigantic pool balls, and

he had a giant lipstick sculpture on the Yale campus, on caterpillar tracks.

They were kidding. And they were funny. They were funny. They were colorful, they were funny, nobody took them seriously. I mean, while they were making their very amusing pieces and Johnny Carson was amusing on TV, why shouldn't somebody be amusing?

Meanwhile, de Kooning was working hard creating masterpieces for the ages. As Rothko was. So it was a wonderful, wonderful atmosphere in which great Europeans who were generally old but still had extraordinary authority and presence. Younger Americans, new generations were coming forward. You had the artist of the 30s, like Stewart Davis and Hopper. Joseph Cornell was still active. The new artists, the Abstract Expressionists of the 40s and 50s, the de Koonings, and the Pollocks and the Rothkos, and you had people like Jasper Johns, the new generation of Pop Artists. So you saw things advancing, and you saw brilliance from one generation to the next. The public cared. There were huge crowds at these shows.

When there was an opening at a gallery – de Kooning had a show, Joseph Cornell had a show – people would line up. These were exciting events. When I was very young – Chagall windows. Chagall made 12 windows for the hospital, a hospital in Jerusalem. They were extraordinary stained-glass – Chagall's medium.

There are beautiful Chagall windows in cathedrals of Europe. The Axial Chapel – the main thing you'd see when you go in the door, an amazing Chagall window in the central position of the Axial Chapel. Nobody talks about them anymore but when the Jerusalem windows showed up at the Museum of Modern Art, there were throngs. It was like a riot to get in there. People cared a lot.

KRISTOL: But the art is the art, whether or not, I guess, a hundred thousand people see it or a thousand people see it or a hundred people see it, right?

GELERNTER: Right, but the excitement. The excitement, the aura of excitement just as –

KRISTOL: That was important to you. I mean, you think growing up?

GELERNTER: It was important to me. The energy, the energy was important to me. My father, for example, is a physicist, a theoretical physicist. He's also a very good violinist. And one of the creators of computer science. He became a physicist, in part, because he's just a natural physicist. He's scientist and mathematician.

But there was excitement about physics in the 40s and the 50s when he was a child. Amazing things were going on. Brilliant people were doing amazing things. You could not help but be excited. And that was the way the art world was in the 60s and early 70s.

KRISTOL: And today you are an artist, and you sell art, and you show art. What do you think?

GELERNTER: I think we are resuming a kind of forward motion. My own art is an outgrowth of Abstract Expressionism. I like painting words as if they were things. Generally Hebrew phrases. I like painting, the idea of painting the words as if it were an object so it's a thing and the letters have an intrinsic beauty and they have color and form and shape. But they also, they're still letters and they're still words that mean something. It's to me a fascinating combination.

Having grown up in the generation after de Kooning and Rothko, they inspire me and taught me an extraordinary lot about color and design and abstraction. But I'm doing something different from them. It was the highlight of my life, I would say, to have a one-man show at the Yeshiva University museum. When was it, two years ago?

That was very satisfying, and I've been lucky to have a small number of buyers who are first-rate collectors. Knowledgeable and wealthy collectors. So I'm –

KRISTOL: Good combination. We're for that.

GELERNTER: Yeah. It's a good combination, and I'm deeply indebted to them. They're wealthy, they worked hard for their money, and I'm – it's an honor to sell them painting. I don't have a million buyers, I have a small number, and it's an honor to have them.

I think the art world is coming out of a spin, and I don't want to harp on this again, but when the intellectuals looked at the art world in the 1970s and now they were in charge everything, what does an intellectual do? He can't be an artist so he invents Conceptual Art. What the hell is Conceptual Art supposed to be? It's an artist saying the art will be the concept because I can't do art. I can't draw. I can't paint. I have no idea of color. I can't sculpt. I can't do anything. I have ideas so we'll call it Conceptual Art, and we'll make art about ideas, and we'll take over the Whitney, and we'll put on a bunch of installations so profoundly offensive that the building is demolished by the hatred it radiates. By the hatred it radiates for its patrons. For the people of New York. For the citizens of America. I mean, this is what the art world was like in the 80s and 90s and the early years of this century.

KRISTOL: And you think it is changing?

GELERNTER: I think it is changing because there are too many art lovers. There are too many art lovers who will not be put off by an installation. An installation where the computer is talking in the corner, and there is a video camera going over here and when you step on this point, you know, lights flash over there. And they say, "Fine, it's like an amusement park, it's fun, but frankly, I've always been moved by paintings. Show me your paintings."

I think we're moving back in a healthy direction. People once again understand that they need to learn to draw. They need to draw in life studios. They need draw the human figure. They need to know it. They need to study color as something that – we're in a remarkable age in which acrylic paint is offering pigments that have been ever been seen by mankind before. An extraordinary translucent quality of acrylic paint. I prefer oils for most purposes, but acrylics are offering something new. There are new materials that offer new possibilities. There are remarkable possibilities. There are ways to put stuff on canvass, to put metal on canvass, to put rust on canvass, which has a remarkable color, russet color. You can do things on canvas that you couldn't used to be able to do. It's a wonderful time to be a painter. And interest in art is reviving.

I think there's a question of whether art can exist without religion. Artists have always either been deeply religious or deeply atheistic. But they needed to. In the case of Picasso, he needed to hate the church. Although he had a superstitious awe of it. In the case of Rothko, who decorates a chapel, or Barnett Newman who were Jews, or Chagall. They need to be connected with religious institutions. Not necessarily their own, maybe churches.

They need, they need religion. Chagall also, of course, did much Jewish art. But they can art exist in an atheist world? In a world of paganism? As art has come out, I don't know but there's still a – but religious art still exists. I think religion is vital to the future of art. But I know that art has a future because there are too many artists and there are too many art lovers who have rejected, who have rejected the nonsense that was foisted upon them by the Whitney Museum and its patrons.

The nonsense, the hatred. The idea that what art consisted of was ranker and caustic, sarcastic, idiotic, criticism of the *bourgeois* so-called, which doesn't even exist anymore, the *bourgeoisie*. The middle classes. There are none anymore.

KRISTOL: Okay, you've left me hopeful and actually excited so I'm going to go look forward to this

renaissance of art. I mean, seriously, it is and I think maybe it's a broader bit of a metaphor for, you know, the – what did someone say, some Latin – was it Horace? “You can throw nature out with a pitchfork but it comes back.” You know, there's a certain human desire for excellence and beauty that can't entirely go away.

GELERNTER: Exactly. The thing about a painter is that he has to paint. He doesn't do it because he wants to or somebody tells him to. He just has to do it. If you don't do it, you're miserable. You have to do it. You can't kill art that easily. It can't be eradicated. It's like poison ivy, it's going to be there. It's going to come back – it's not like poison ivy, it's like daffodils.

KRISTOL: That's good. And that's a good note to end on. David Gelernter, thank you so much for joining me today. And thank you so much for joining us on CONVERSATIONS.

GELERNTER: Thank you.

[END]