

Ken Robinson: Bring on the Learning Revolution (2010)

Four years after [his speech on creativity](#) and education, [Ken Robinson](#) argues for revolution, not reform, in education.

From [the amazing TED lectures](#): talks from the TED (Technology, Entertainment, Design) Conference, where leading thinkers talk on science, business, development and the arts.

Ken Robinson:

Al Gore spoke at the TED conference I spoke at four years ago and talked about the climate crisis. And I referenced that at the end of my last talk. So I want to pick up from there because I only had 18 minutes, frankly. So, as I was saying...

(Laughter)

You see, he's right. I mean, there is a major climate crisis, obviously, and I think if people don't believe it, they should get out more. (Laughter) But I believe there's a second climate crisis, which is as severe, which has the same origins, and that we have to deal with with the same urgency. And I mean by this – and you may say, by the way, “Look, I'm good. I have one climate crisis; I don't really need the second one.” But this is a crisis of, not natural resources – though I believe that's true – but a crisis of human resources.

I believe fundamentally, as many speakers have said during the past few days, that we make very poor use of our talents. Very many people go through their whole lives having no real sense of what their talents may be, or if they have any to speak of. I meet all kinds of people who don't think they're really good at anything.

Actually, I kind of divide the world into two groups now. Jeremy Bentham, the great utilitarian philosopher, once spiked this argument. He said, "There are two types of people in this world: those who divide the world into two types and those who do not." (Laughter) Well, I do. (Laughter)

I meet all kinds of people who don't enjoy what they do. They simply go through their lives getting on with it. They get no great pleasure from what they do. They endure it rather than enjoy it and wait for the weekend. But I also meet people who love what they do and couldn't imagine doing anything else. If you said to them, "Don't do this anymore," they'd wonder what you were talking about. Because it isn't what they do, it's who they are. They say, "But this is me, you know. It would be foolish for me to abandon this, because it speaks to my most authentic self." And it's not true of enough people. In fact, on the contrary, I think it's still true of a minority of people. I think there are many

possible explanations for it. And high among them is education, because education, in a way, dislocates very many people from their natural talents. And human resources are like natural resources; they're often buried deep. You have to go looking for them, they're not just lying around on the surface. You have to create the circumstances where they show themselves. And you might imagine education would be the way that happens, but too often it's not. Every education system in the world is being reformed at the moment and it's not enough. Reform is no use anymore, because that's simply improving a broken model. What we need – and the word's been used many times during the course of the past few days – is not evolution, but a revolution in education. This has to be transformed into something else.

(Applause)

One of the real challenges is to innovate fundamentally in education. Innovation is hard because it means doing something

that people don't find very easy, for the most part. It means challenging what we take for granted, things that we think are obvious. The great problem for reform or transformation is the tyranny of common sense; things that people think, "Well, it can't be done any other way because that's the way it's done."

I came across a great quote recently from Abraham Lincoln, who I thought you'd be pleased to have quoted at this point. (Laughter) He said this in December 1862 to the second annual meeting of Congress. I ought to explain that I have no idea what was happening at the time. We don't teach American history in Britain. (Laughter) We suppress it. You know, this is our policy. (Laughter) So, no doubt, something fascinating was happening in December 1862, which the Americans among us will be aware of.

But he said this: "The dogmas of the quiet past are inadequate to the stormy present. The occasion is piled high with difficulty, and we must rise with the occasion." I love that. Not rise to it, rise with it. "As our case is new, so we must think anew and act anew. We must disenthrall ourselves, and then we shall save our country."

I love that word, "disenthrall." You know what it means? That there are ideas that all of us are enthralled to, which we simply take for granted as the natural order of things, the way things are. And many of our ideas have been formed, not to meet the circumstances of this century, but to cope with the circumstances of previous centuries. But our minds are still hypnotized by them, and we have to disenthrall ourselves of some of them. Now, doing this is easier said than done. It's very hard to know, by the way, what it is you take for granted. (Laughter) And the reason is that you take it for granted.

So let me ask you something you may take for granted. How many of you here are over the age of 25? That's not what I think you take for granted, I'm sure you're familiar with that

already. Are there any people here under the age of 25? Great. Now, those over 25, could you put your hands up if you're wearing your wristwatch? Now that's a great deal of us, isn't it? Ask a room full of teenagers the same thing. Teenagers do not wear wristwatches. I don't mean they can't or they're not allowed to, they just often choose not to. And the reason is, you see, that we were brought up in a pre-digital culture, those of us over 25. And so for us, if you want to know the time you have to wear something to tell it. Kids now live in a world which is digitized, and the time, for them, is everywhere. They see no reason to do this. And by the way, you don't need to do it either; it's just that you've always done it and you carry on doing it. My daughter never wears a watch, my daughter Kate, who's 20. She doesn't see the point. As she says, "It's a single function device." (Laughter) "Like, how lame is that?" And I say, "No, no, it tells the date as well." (Laughter) "It has multiple functions."

But, you see, there are things we're enthralled to in education. Let me give you a couple of examples. One of them is the idea of linearity: that it starts here and you go through a track and if you do everything right, you will end up set for the rest of your life. Everybody who's spoken at TED has told us implicitly, or sometimes explicitly, a different story: that life is not linear; it's organic. We create our lives symbiotically as we explore our talents in relation to the circumstances they help to create for us. But, you know, we have become obsessed with this linear narrative. And probably the pinnacle for education is getting you to college. I think we are obsessed with getting people to college. Certain sorts of college. I don't mean you shouldn't go to college, but not everybody needs to go and not everybody needs to go now. Maybe they go later, not right away.

And I was up in San Francisco a while ago doing a book signing. There was this guy buying a book, he was in his 30s. And I said, "What do you do?" And he said, "I'm a fireman."

And I said, "How long have you been a fireman?" He said, "Always. I've always been a fireman." And I said, "Well, when did you decide?" He said, "As a kid." He said, "Actually, it was a problem for me at school, because at school, everybody wanted to be a fireman." He said, "But I wanted to be a fireman." And he said, "When I got to the senior year of school, my teachers didn't take it seriously. This one teacher didn't take it seriously. He said I was throwing my life away if that's all I chose to do with it; that I should go to college, I should become a professional person, that I had great potential and I was wasting my talent to do that." And he said, "It was humiliating because he said it in front of the whole class and I really felt dreadful. But it's what I wanted, and as soon as I left school, I applied to the fire service and I was accepted." And he said, "You know, I was thinking about that guy recently, just a few minutes ago when you were speaking, about this teacher," he said, "because six months ago, I saved his life." (Laughter) He said, "He was in a car wreck, and I pulled him out, gave him CPR, and I saved his wife's life as well." He said, "I think he thinks better of me now."

(Laughter)

(Applause)

You know, to me, human communities depend upon a diversity of talent, not a singular conception of ability. And at the heart of our challenges – (Applause) At the heart of the challenge is to reconstitute our sense of ability and of intelligence. This linearity thing is a problem.

When I arrived in L.A. about nine years ago, I came across a policy statement – very well-intentioned – which said, "College begins in kindergarten." No, it doesn't. (Laughter) It doesn't. If we had time, I could go into this, but we don't. (Laughter) Kindergarten begins in kindergarten. (Laughter) A friend of mine once said, "You know, a three

year-old is not half a six year-old.” (Laughter) (Applause)
They’re three.

But as we just heard in this last session, there’s such competition now to get into kindergarten – to get to the right kindergarten – that people are being interviewed for it at three. Kids sitting in front of unimpressed panels, you know, with their resumes, (Laughter) flipping through and saying, “Well, this is it?” (Laughter) (Applause) “You’ve been around for 36 months, and this is it?” (Laughter) “You’ve achieved nothing – commit. Spent the first six months breastfeeding, the way I can see it.” (Laughter) See, it’s outrageous as a conception, but it [unclear].

The other big issue is conformity. We have built our education systems on the model of fast food. This is something Jamie Oliver talked about the other day. You know there are two models of quality assurance in catering. One is fast food, where everything is standardized. The other are things like Zagat and Michelin restaurants, where everything is not standardized, they’re customized to local circumstances. And we have sold ourselves into a fast food model of education, and it’s impoverishing our spirit and our energies as much as fast food is depleting our physical bodies.

(Applause)

I think we have to recognize a couple of things here. One is that human talent is tremendously diverse. People have very different aptitudes. I worked out recently that I was given a guitar as a kid at about the same time that Eric Clapton got his first guitar. You know, it worked out for Eric, that’s all I’m saying. (Laughter) In a way, it did not for me. I could not get this thing to work no matter how often or how hard I blew into it. (Laughter) It just wouldn’t work.

But it’s not only about that. It’s about passion. Often, people are good at things they don’t really care for. It’s

about passion, and what excites our spirit and our energy. And if you're doing the thing that you love to do, that you're good at, time takes a different course entirely. My wife's just finished writing a novel, and I think it's a great book, but she disappears for hours on end. You know this, if you're doing something you love, an hour feels like five minutes. If you're doing something that doesn't resonate with your spirit, five minutes feels like an hour. And the reason so many people are opting out of education is because it doesn't feed their spirit, it doesn't feed their energy or their passion.

So I think we have to change metaphors. We have to go from what is essentially an industrial model of education, a manufacturing model, which is based on linearity and conformity and batching people. We have to move to a model that is based more on principles of agriculture. We have to recognize that human flourishing is not a mechanical process; it's an organic process. And you cannot predict the outcome of human development. All you can do, like a farmer, is create the conditions under which they will begin to flourish.

So when we look at reforming education and transforming it, it isn't like cloning a system. There are great ones, like KIPP's; it's a great system. There are many great models. It's about customizing to your circumstances and personalizing education to the people you're actually teaching. And doing that, I think, is the answer to the future because it's not about scaling a new solution; it's about creating a movement in education in which people develop their own solutions, but with external support based on a personalized curriculum.

Now in this room, there are people who represent extraordinary resources in business, in multimedia, in the Internet. These technologies, combined with the extraordinary talents of teachers, provide an opportunity to revolutionize education. And I urge you to get involved in it because it's vital, not just to ourselves, but to the future of our children. But we have to change from the industrial model to an agricultural

model, where each school can be flourishing tomorrow. That's where children experience life. Or at home, if that's where they choose to be educated with their families or their friends.

There's been a lot of talk about dreams over the course of this few days. And I wanted to just very quickly ... I was very struck by Natalie Merchant's songs last night, recovering old poems. I wanted to read you a quick, very short poem from W. B. Yeats, who some of you may know. He wrote this to his love, Maud Gonne, and he was bewailing the fact that he couldn't really give her what he thought she wanted from him. And he says, "I've got something else, but it may not be for you."

He says this: "Had I the heavens' embroidered cloths, Enwrought with gold and silver light, The blue and the dim and the dark cloths Of night and light and the half-light, I would spread the cloths under your feet: But I, being poor, have only my dreams; I have spread my dreams under your feet; Tread softly because you tread on my dreams." And every day, everywhere, our children spread their dreams beneath our feet. And we should tread softly.

Thank you.

(Applause)

Thank you very much.

Ken Robinson: Changing Paradigms in Education

Ken Robinson is speaking on the topic of Changing Paradigms in

Education at a RSA lecture. You can [view the full 55-minute lecture here](#) on the RSA.org site. (The video here is only 11:41 minutes long).

Visit the [RSA website](#) for other animations and videos.

The transcript is from the [Lewis on Positive Psychology](#) blog.

Ken Robinson: Every country on earth at the moment is reforming public education. There are two reasons for it.

The first of them is economic. People are trying to work out, how do we educate our children to take their place in the economies of the 21st century. How do we do that? Given that can't anticipate what the economy will look like at the end of next week. as the recent turmoil has demonstrated. How do you do that?

The second though is cultural. Every country on earth on earth is trying to figure out how do we educate our children so they have a sense of cultural identity, so that we can pass on the cultural genes of our communities. While being part of the process globalization, how do you square that circle?

The problem is they are trying to meet the future by doing what they did in the past. And on the way they are alienating millions of kids who don't see any purpose in going to school.

When we went to school we were kept there with the story, which is if you worked hard and did well and got a college degree you'd have a job. Our kids don't believe that, and they are right not to by the way. You are better having a degree than not, but it's not a guarantee anymore.

And particularly not if the route to it marginalises most of the things that you think are important about yourself. Some people say we have to raise standards if this is a breakthrough. You know... really. Yes, we should. Why would you

lower them? You know...I haven't come across an argument that persuades me they've lowered them.

But raising them, of course we should raise them. The problem is that the current system of education was designed and conceived and structured for a different age. It was conceived in the intellectual culture of the Enlightenment, and in the economic circumstances of the Industrial Revolution.

Before the middle of the nineteenth century there were no systems of public education. Not really, I mean you'd get educated by Jesuits if you had the money. But public education paid for from taxation, compulsory to everybody and free at the point of delivery, that was a revolutionary idea. And many people objected to it. They said it's not possible for many street kids working class children to benefit from public education. They are incapable of learning to read and write and why are we spending time on this?

So there was also built into the whole series of assumptions about social structuring capacity. It was driven by an economic imperative of the time, but running right through it, was an intellectual model of the mind, which was essentially the Enlightenment view of intelligence. The real intelligence consisted in this capacity for certain type of deductive reasoning, and a knowledge of the Classics originally, what we've come to think of as academic ability. And this is deep in the gene pool of public education. There are really two types of people. Academic and non academic. Smart people and non smart people. And the consequence of that is that many brilliant people think they are not, because they've been judged against this particular view of the mind. So we have twin pillars, economic and intellectual. And my view is that this model has caused chaos in many people's lives.

And it's been great for some – there've been people who benefited wonderfully from it, but most people have not. Instead they suffered this. This is the modern epidemic, and

it's as misplaced as fictitious. This is the plague of ADHD. Now this is a map of the instance of ADHD in America. Or prescriptions for ADHD. Don't mistake me I don't mean to say there is no such thing as attention deficit disorder. I'm not qualified to say if there isn't such a thing. I know that a great majority of psychologists and paediatricians think there's such a thing. – but it's still a matter of debate.

What I do know for a fact is it's not an epidemic. These kids of being medicated as routinely as we have our tonsils taken out. And on the same whimsical basis and for the same reason medical fashion. Our children are living in the most intensely stimulating period in the history of the earth. They are being besieged with information and parse their attention from every platform, computers, from iPhones, from advertising holdings from hundreds of television channels. And we are penalizing them for getting distracted. From what? Boring stuff. At school for the most part It seems to me not a coincidence totally that the instance of ADHD has risen in parallel with the growth of standardized testing. And these kids are being given Ritalin and Adderall and all manner of things. Often quite dangerous drugs to get them focused and calm them down. But according to this attention deficit disorder increases as you travel east across the country. People start losing interest in Oklahoma. (laughs) They can hardly think straight in Arkansas. And by the time they get to Washington they've lost it completely. (laughs)

And there are separate reasons for that, I believe. It's a fictitious epidemic. If you think of it, the Arts – and I don't say this is exclusively the Arts, I think it's also true of Science and of Maths. I say about the Arts particularly because they are the victims of this mentality currently. Particularly. The Arts especially address the idea of Aesthetic experience. An aesthetic experience is one in which your senses are operating at their peak. When you're present in the current moment. When you are resonating with the

excitement of this thing that you're experiencing. When you are fully alive. And anaesthetic is when you shut your senses off, and deaden yourself what's happening. And a lot of these drugs are that. We're getting our children through education by anaesthetising them. And I think we should be doing the exact opposite. We shouldn't be putting them asleep, we should be waking them up, to what they have inside of themselves. But the model we have is this. It's I believe we have a system of education which is modelled on the interest of industrialism. and in the image of it.

I'll give you a couple examples. Schools are still pretty much organised on factory lines. On ringing bells, separate facilities, specialised into separate subjects. We still educate children by batches. You know, we put them through the system by age group. Why do we do that? You know, why is there this assumption that the most important thing kids have in common is how old they are. You know, it's like the most important thing about them is their date of manufacture. Well I know kids who are much better than other kids at the same age in different disciplines. You know, or at different times of the day, or better in smaller groups than in large groups or sometimes they want to be on their own.

If you are interested in the model of learning you don't start from this production line mentality. This is essentially about conformity. Increasingly it's about that as you look at the growth of standardised testing and standardised curricula. and it's about standardisation. I believe we've got go in the exact opposite direction. That's what I mean about changing the paradigm.

There is a great study done recently on divergent thinking – Published a couple years ago. Divergent thinking isn't the same thing as creativity. I define creativity as the process of having original ideas which have value. Divergent thinking isn't a synonym, but it's an essential capacity for creativity. It's the ability to see lots of possible answers

to a question. Lots of possible ways of interpreting a question. To think, what Edward de Bono publicly called laterally. To think not just in linear or convergent ways. To see multiple answers and not one. So I made up a test for this. I mean one called the cod example would be people might be asked to say: How many uses can you think of for a paper clip? Follows routine questions. Most people might come with 10 or 15. People who are good at this might come with 200. And they do that by saying. Well, could the paper clip be 200 foot tall and be made of foam rubber? You know... like does it have to be a paper clip as we know it, Jim? The test is this. They gave them to 1500 people in a book called Breakpoint and Beyond. And on the protocol of the test if you scored above a certain level, you'd be considered to be a genius of divergent thinking. So my question to you is: what percentage of the people tested of the 1500 scored genius level for divergent thinking? I need to know one more thing about them. These were kindergarten children... So what do you think? What percentage of genius level? -80 80, OK? 98% Now the thing about this was a longitudinal study. So they retested the same children five years later, ages of 8-10. What do you think? -50? They retested them again 5 years later, ages 13-15. You can see a trend here coming. Now, this tells a interesting story. Because you could've imagined they're going the other way. Could you? You start off not being very good but you get better as you get older.

But this shows 2 things: One is we all have this capacity and Two: It mostly deteriorates. Now a lot have happened to these kids as they grown up, a lot. But one of the most important things happened that I'm convinced is that by now they've become educated. They spend 10 years in school being told there is one answer, it's at the back, and don't look. And don't copy because that's cheating. I mean outside school that's called collaboration but, inside schools. This isn't because teachers wanted this way it's just because it happens that way. It's because it's in the gene pool of education. We

have to think different about human capacity. We have to get over this old conception of academic, non academic. Abstract, theoretical, vocational and see it for what it is: a Myth.

Second, we have to recognize most great learning happens in groups. That collaboration is the stuff of growth. If we atomize people and separate them and judge them separately, we form a kind of disjunction between them and their natural learning environment. And thirdly, it's crucially about the culture of our institutions. The habits of institutions and the habitats that they occupy.

Ken Robinson: TED, 2006

Sir Ken Robinson argues for an education system that promotes creativity, 2006. From [the amazing TED lectures](#): talks from the TED (Technology, Entertainment, Design) Conference, where leading thinkers talk on science, business, development and the arts.

Good morning. How are you? It's been great, hasn't it? I've been blown away by the whole thing. In fact, I'm leaving.

There have been three themes, haven't there, running through the conference, which are relevant to what I want to talk about.

One is the extraordinary evidence of human creativity in all of the presentations that we've had and in all of the people here. Just the variety of it and the range of it.

The second is, that it's put us in a place where we have no idea what's going to happen, in terms of the future, no idea

how this may play out.

I have an interest in education – actually, what I find is, everybody has an interest in education; don't you? I find this very interesting. If you're at a dinner party, and you say you work in education – actually, you're not often at dinner parties, frankly, (excuse me), if you work in education, you're not asked. And you're never asked back, curiously. That's ah, that's strange to me. But if you are, and you say to somebody, you know, they say, "What do you do," and you say you work in education, you can see the blood run from their face. They're like, "Oh my God," you know, "why me? My one night out all week." But if you ask people about their education, they pin you to the wall. Because it's one of those things that goes deep with people, am I right?, like religion, and money, and other things.

So, I have a big interest in education, and I think we all do, we have a huge vested interest in it, partly because it's education that's meant to take us into this future that we can't grasp.

If you think of it, children starting school this year will be retiring in 2065. Nobody has a clue, despite all the expertise that's been on parade for the past four days, what the world will look like in five years' time. And yet we're meant to be educating them for it.

So the unpredictability, I think, is extraordinary.

And the third part of this is that we've all agreed nonetheless on the really extraordinary capacities that children have, their capacities for innovation. I mean, Sirena last night was a marvel, wasn't she, just seeing what she could do. And she's exceptional, but I think she's not, so to speak, exceptional in the whole of childhood. What you have there is a person of extraordinary dedication who found a talent.

And my contention is, all kids have tremendous talents and we squander them, pretty ruthlessly.

So I want to talk about education and I want to talk about creativity. My contention is that creativity now is as important in education as literacy, and we should treat it with the same status. [applause]

Thank you.

That was it, by the way, thank you very much. Soooo, 15 minutes left. Well, I was born ... No...

I heard a great story recently, I love telling it, of a little girl who was in a drawing lesson, she was 6 and she was at the back, drawing, and the teacher said this little girl hardly ever paid attention, and in this drawing lesson she did. The teacher was fascinated and she went over to her and she said, "What are you drawing?" and the girl said, "I'm drawing a picture of God." And the teacher said, "But nobody knows what God looks like." And the girl said, "They will in a minute."

When my son was 4 in England – actually he was 4 everywhere, to be honest; if we're being strict about it, wherever he went, he was 4, but, yeah – he was in the nativity play. Do you remember the story? No, it was big, it was a big story. Mel Gibson did the sequel, you may have seen it, "Nativity II." But James got the part of Joseph, which we were thrilled about. We considered this to be one of the lead parts. We had the place crammed full of agents in T-shirts: "James Robinson IS Joseph!" He didn't have to speak, but you know the bit where the three kings come in? They come in bearing gifts, and they bring gold, frankincense and myrrh. This really happened – we were sitting there and they, we think they just went out of sequence, we talked to the little boy afterward and we said, "You OK with that" and he said "Yeah, why, was that wrong?" – they just switched, I think that was it. Anyway, the three boys came in, little 4-year-olds with tea towels on

their heads, and they put these boxes down, and the first boy said, "I bring you gold." The second boy said, "I bring you myrrh." And the third boy said, "Frank sent this".

What these things have in common is that kids will take a chance. If they don't know, they'll have a go. Am I right? They're not frightened of being wrong.

Now, I don't mean to say that being wrong is the same thing as being creative. What we do know is, if you're not prepared to be wrong, you'll never come up with anything original. If you're not prepared to be wrong. And by the time they get to be adults, most kids have lost that capacity. They have become frightened of being wrong.

And we run our companies like this, by the way, we stigmatize mistakes. And we're now running national education systems where mistakes are the worst thing you can make.

And the result is, we are educating people out of their creative capacities.

Picasso once said this, he said that all children are born artists. The problem is to remain an artist as we grow up. I believe this passionately, that we don't grow into creativity, we grow out of it. Or rather we get educated out of it. So why is this?

I lived in Stratford-on-Avon until about five years ago, in fact we moved from Stratford to Los Angeles, so you can imagine what a seamless transition this was, from, LA. Actually we lived in a place called Snitterfield, just outside Stratford, which is where Shakespeare's father was born. Were you struck by a new thought? I was. You don't think of Shakespeare having a father, do you? Do you? Because you don't think of Shakespeare being a child, do you? Shakespeare being 7? I never thought of it. I mean, he was 7 at some point; he was in somebody's English class, wasn't he? How annoying would that be? "Must try harder."

Being sent to bed by his dad, you know, to Shakespeare, "Go to bed, now," to William Shakespeare, "and put the pencil down. And stop speaking like that. You know, it's confusing everybody."

Anyway, we moved from Stratford to Los Angeles, and I just want to say a word about the transition, actually. My son didn't want to come. I've got two kids, he's 21 now, my daughter's 16; he didn't want to come to Los Angeles. He loved it, but he had a girlfriend in England. This was the love of his life, Sarah. He'd known her for a month. Mind you, they'd had their fourth anniversary, because it's a long time when you're 16. Anyway, he was really upset on the plane, and he said, "I'll never find another girl like Sarah." And we were rather pleased about that, frankly, because she was the main reason we were leaving the country.

But something strikes you when you move to America and when you travel around the world: every education system on earth has the same hierarchy of subjects. Every one, doesn't matter where you go, you'd think it would be otherwise but it isn't. At the top are mathematics and languages, then the humanities, and the bottom are the arts. Everywhere on earth.

And in pretty much every system too, there's a hierarchy within the arts. Art and music are normally given a higher status in schools than drama and dance. There isn't an education system on the planet that teaches dance every day to children the way we teach them mathematics. Why? Why not? I think this is rather important. I think maths is very important but so is dance. Children dance all the time if they're allowed to, we all do. We all have bodies, don't we? Did I miss a meeting? I mean...

Truthfully what happens is, as children grow up we start to educate them progressively from the waist up. And then we focus on their heads. And slightly to one side.

If you were to visit education as an alien and say what's it for, public education, I think you'd have to conclude, if you look at the output, you know, who really succeeds by this, who does everything they should, who gets all the brownie points, who are the winners, I think you'd have to conclude the whole purpose of public education throughout the world is to produce university professors. Isn't it? They're the people who come out the top. And I used to be one, so there. But,... And I like university professors, but you know, we shouldn't hold them up as the high-water mark of all human achievement. They're just a form of life, another form of life. But they're rather curious and I say this out of affection for them, there's something curious about professors, not all of them but typically, they live in their heads, they live up there, and slightly to one side. They're disembodied. You know, in a kind of literal way. They look upon their bodies as a form of transport for their heads, don't they? It's a way of getting their head to meetings.

If you want real evidence of out-of-body experiences, by the way, get yourself along to a residential conference of senior academics, and pop into the discotheque on the final night, and there you will see it, grown men and women writhing uncontrollably, off the beat, waiting until it ends so they can go home and write a paper about it.

Now our education system is predicated on the idea of academic ability. And there's a reason. The whole system was invented round the world there were no public systems of education really before the 19th century. They all came into being to meet the needs of industrialism.

So the hierarchy is rooted on two ideas: Number one, that the most useful subjects for work are at the top. So you were probably steered benignly away from things at school when you were a kid, things you liked, on the grounds that you would never get a job doing that. Is that right? Don't do music, you're not going to be a musician; don't do art, you're not

going to be an artist. Benign advice – now, profoundly mistaken. The whole world is engulfed in a revolution.

And the second is, academic ability, which has really come to dominate our view of intelligence because the universities designed the system in their image. If you think of it, the whole system of public education around the world is a protracted process of university entrance. And the consequence is that many highly talented, brilliant, creative people think they're not, because the thing they were good at at school wasn't valued, or was actually stigmatized. And I think we can't afford to go on that way.

In the next 30 years. according to Unesco, more people worldwide will be graduating through education than since the beginning of history. More people, and it's the combination of all the things we've talked about – technology and its transformation effect on work, and demography and the huge explosion in population.

Suddenly degrees aren't worth anything. Isn't that true? When I was a student, if you had a degree, you had a job. If you didn't have a job it's because you didn't want one. And I didn't want one, frankly, so...

But now kids with degrees are often heading home to carry on playing video games, because you need an MA where the previous job required a BA, and now you need a PhD for the other. It's a process of academic inflation. And it indicates the whole structure of education is shifting beneath our feet. We need to radically rethink our view of intelligence.

We know three things about intelligence: One, it's diverse, we think about the world in all the ways that we experience it. We think visually, we think in sound, we think kinesthetically. We think in abstract terms, we think in movement. Secondly, intelligence is dynamic. If you look at the interactions of a human brain, as we heard yesterday from

a number of presentations, intelligence is wonderfully interactive. The brain isn't divided into compartments. In fact, creativity, which I define as the process of having original ideas that have value, more often than not comes about through the interaction of different disciplinary ways of seeing things. The brain is intentionally – by the way, there's a shaft of nerves that joins the two halves of the brain called the corpus collosum, and it's thicker in women. Following on from Helen yesterday, I think this is probably why women are better at multitasking, because you are, aren't you, there's a raft of research, but I know it from my personal life.

If my wife is cooking a meal at home, which is not often, thankfully, but you know, she's doing (no, she's good at some things) but if she's cooking, you know, she's dealing with people on the phone, she's talking to the kids, she's painting the ceiling, she's doing open-heart surgery over here; if I'm cooking, the door is shut, the kids are out, the phone's on the hook, if she comes in I get annoyed, I say "Terry, please, I'm trying to fry an egg in here, give me a break." (Actually, there was – You know that old philosophical thing, if a tree falls in the forest and nobody hears it, did it happen, remember that old chestnut, I saw a great T-shirt recently that said, "If a man speaks his mind in a forest, and no woman hears him, is he still wrong?")

And the third thing about intelligence is, it's distinct. I'm doing a new book at the moment called Epiphany which is based on a series of interviews with people about how they discovered their talent. I'm fascinated by how people got to be there. It's really prompted by a conversation I had with a wonderful woman who maybe most people have never heard of, she's called Gillian Lynne, have you heard of her? Some have. She's a choreographer and everybody knows her work. She did Cats, and Phantom of the Opera, she's wonderful. I used to be on the board of the Royal Ballet, in England, as you can see,

and Gillian and I had lunch one day and I said Gillian, how'd you get to be a dancer? And she said it was interesting, when she was at school, she was really hopeless. And the school, in the 30s, wrote her parents and said, "We think Gillian has a learning disorder." She couldn't concentrate, she was fidgeting. I think now they'd say she had ADHD. Wouldn't you? But this was the 1930s and ADHD hadn't been invented, you know, at this point. It wasn't an available condition. People weren't aware they could have that.

Anyway she went to see this specialist, so, this oak-paneled room, and she was there with her mother and she was led and sat on a chair at the end, and she sat on her hands for 20 minutes while this man talked to her mother about all the problems Gillian was having at school. And at the end of it – because she was disturbing people, her homework was always late, and so on, little kid of 8 – in the end, the doctor went and sat next to Gillian and said, "Gillian I've listened to all these things that your mother's told me, and I need to speak to her privately." He said, "Wait here, we'll be back, we won't be very long," and they went and left her.

But as they went out the room, he turned on the radio that was sitting on his desk, and when they got out the room, he said to her mother, "Just stand and watch her." And the minute they left the room, she said, she was on her feet, moving to the music. And they watched for a few minutes and he turned to her mother and said, "Mrs. Lynne, Gillian isn't sick; she's a dancer. Take her to a dance school."

I said, "What happened?"

She said, "She did. I can't tell you how wonderful it was. We walked in this room and it was full of people like me, people who couldn't sit still. People who had to move to think." Who had to move to think. They did ballet, they did tap, they did jazz, they did modern, they did contemporary. She was eventually auditioned for the Royal Ballet School, she became

a soloist, she had a wonderful career at the Royal Ballet, she eventually graduated from the Royal Ballet School and founded her own company, the Gillian Lynne Dance Company, and met Andrew Lloyd Weber.

She's been responsible for some of the most successful musical theater productions in history, she's given pleasure to millions, and she's a multimillionaire.

Somebody else might have put her on medication and told her to calm down.

Now, I think – What I think it comes to is this: Al Gore spoke the other night about ecology and the revolution that was triggered, em, by Rachel Carson. I believe our only hope for the future is to adopt a new conception of human ecology, one in which we start to reconstitute our conception of the richness of human capacity. Our education system has mined our minds in the way that we strip-mine the earth, for a particular commodity, and for the future, it won't serve us.

We have to rethink the fundamental principles on which we're educating our children. There was a wonderful quote by Jonas Salk, who said, "If we were to – if all the insects were to disappear from the earth, within 50 years all life on earth would end. If all human beings disappeared from the earth, within 50 years all forms of life would flourish." And he's right.

What TED celebrates is the gift of the human imagination. We have to be careful now that we use this gift wisely, and that we avert some of the scenarios that we've talked about. And the only way we'll do it is by seeing our creative capacities for the richness they are, and seeing our children for the hope that they are. And our task is to educate their whole being, so they can face this future – by the way, we may not see this future, but they will. And our job is to help them make something of it. Thank you very much.