

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.

Keith Barry: Brain Magic

[Keith Patrick Barry](#) is an Irish illusionist, mentalist, and close-up magician. You can visit [his website, KeithBarry.com](http://KeithBarry.com), [here](#).

An interactive transcript can be found [here, on the TED website](#).

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

Keith Barry: : Brain magic. What's brain magic all about? Brain magic to me indicates that area of magic dealing with psychological and mind reading effects. So unlike traditional magic, it uses the power of words, linguistic deception, non-verbal communication and various other techniques to create the illusion of a sixth sense.

Now, I'm going to show you all how easy it is to manipulate the human mind once you know how. And I want everybody downstairs also to join in with me and everybody here. I want everybody to put out your hands like this for me, first of all. OK, clap them together, once. OK, reverse your hands. Now follow my actions exactly. Now about half the audience has their left hand up. Why is that? OK, swap them around, put your right hand up. OK, now, cross your hands over, so your right hand goes over, interlace your fingers like this, then make sure your right thumb is outside your left thumb – that's very important. Yours is the other way around, so swap it around. Excellent, OK. Extend your fingers like this for me. All right. Tap them together once. OK, now, if you did not allow me to deceive your minds, you would all be able to do this. (Laughter) So, now you can see how easy it is for me to manipulate the human mind, once you know how. (Laughter)

Now, I remember when I was about 15, I read a copy of Life magazine, which detailed a story about a 75-year-old blind Russian woman who could sense printed letters – there's still people trying to do it here – (Laughter) – who could sense printed letters and even sense colors, just by touch. And she was completely blind. She could also read the serial numbers

on bills when they were placed, face down, on a hard surface. Now, I was fascinated, but at the same time, skeptical. How could somebody read using their fingertips? You know, if you actually think about it, if somebody is totally blind – a guy yesterday did a demonstration in one of the rooms where people had to close their eyes, and they could just hear things. And it's just a really weird thing to try and figure out, how could somebody read using their fingertips? Now earlier on, as part of a TV show that I have coming up on MTV, I attempted to give a similar demonstration of what is now known as second sight. So let's take a look.

(Video) Man: There we go. I'll guide you into the car.

Kathryn: (Laughter)

Man: You're OK, keep on going.

Kathryn: How are you?

Keith Barry: Kathryn, it's Keith here, I'm going to take you to a secret location, OK?

KB: Now, Kathryn, there was no way you could see through that blindfold, at all.

Kathryn: OK, but don't say my name like that.

KB: No, but you're OK, yes?

Kathryn: Yes.

KB: There's no way you could have seen through it, agreed?

Kathryn: No.

KB: OK, I'm just going to take it off, you're OK, you're OK. Do you want to take off the other part of it? Go ahead and take it off, you're OK. We'll just stop for a second.

Kathryn: I'm so afraid of what I'm going to see.

KB: No, no, you're fine, you're fine, take it off. You're OK, you're safe. Have you ever heard of second sight?

Kathryn: No.

KB: Second sight is whereby a mind-control expert can see through somebody else's eyes. And I'm going to try that right now.

Kathryn: God.

KB: Are you ready? Where is it? There's no way ...

Kathryn: (Beep) Oh, my God!

KB: Shh. Don't say anything, I'm trying to see through your eyes. I can't see.

Kathryn: There's a wall, there's a wall.

KB: Look at the road, look at the road.

Kathryn: OK, OK, OK. Oh, my God!

KB: Now, anything coming at all?

Kathryn: No, no, no, no.

KB: Sure there's not?

Kathryn: No, no, I'm just still looking at the road. I'm looking at the road, all the time, I'm not taking my eyes off the road. (Beep) (Beep) (Beep) Oh, my God!

KB: Where are we? Where are we? We're going uphill, are we going uphill?

Kathryn: Look at the road – (Beep) Still got that goddamn blindfold on.

KB: What?

Kathryn: How are you doing this?

KB: Just don't break my concentration. KB: We're OK, though?

Kathryn: Yes. That's so weird. We're nearly there. Oh, my God!
Oh, my God!

KB: And I've stopped.

Kathryn: That is weird. You're like a freak-ass of nature.
That was the most scary thing I've ever done in my life.

(Applause)

Thank you. By the way, two days ago, we were going to film this down there, at the race course, and we got a guy into a car, and we got a camera man in the back, but halfway through the drive, he told me he had a – I think it was a nine-millimeter or something, stuck to his leg. So I stopped pretty quick, and that was it.

So, do you believe it's possible to see through somebody else's eyes? That's the question. Now, most people here would automatically say no. OK, but I want you to realize some facts. I couldn't see through the blindfold. The car was not gimmicked or tricked in any way, the girl – I'd never met before, all right. So I want you to just think about it for a moment. A lot of people try to come up with a logical solution to what just happened, all right. But because your brains are not trained in the art of deception, the solutions you come up with will 99 percent of the time be way off the mark.

This is because magic is all about directing attention. If, for instance, I didn't want you to look at my right hand, well, then, I don't look at it. But if I wanted you to look at my right hand, then I look at it, too, you see. It's very, very simple, once you know how, but very complicated in other ways.

Now, I'm going to give you some demonstrations up here, live,

right now. I need two people to help me out real quick. Can you come up? And let's see, down at the end, here, can you also come up, real quick? Do you mind? Yes, at the end. OK, give them a round of applause as they come up. You might want to use the stairs, there. (Applause) Now, it's very important for everybody here to realize I haven't set anything up with you guys. You don't know what's about to happen. Is that agreed? OK, would you mind just standing over here for a moment? Your name is?

Nicole: Nicole.

KB: Nicole, and? (Telephone ringing)

KB: OK, oh. Tell them, actually here's the thing, answer it, answer it, answer it. (Laughter)

KB: Is it a girl?

Man: They've already gone.

KB: Oh, they're gone, OK. I'll tell you what, swap over positions. Can you stand over here, this will just make it a little bit easier. OK, that was a pity, I would have told them it was the ace of spades. OK, a little bit closer. (Laughter) A little bit closer. (Laughter) OK, a little bit closer, come over – they look really nervous up here. Come in a little bit closer.

OK, now, do you believe in witchcraft at all?

Nicole: No.

KB: Voodoo?

Nicole: No.

KB: Things that go bump in the night?

Nicole: No.

KB: Besides, who's next, no, OK. I want you to just stand exactly like this for me, pull up your sleeves, if you don't mind. OK, now, I want you to be aware of all the different sensations around you, because we're going to try a voodoo experiment right now. I want you to be aware of the sensations, but don't say anything until I ask you, and don't open your eyes until I ask you. From this point onwards, close your eyes, do not say anything, do not open them, be aware of the sensations.

Yes or no, did you feel anything?

Nicole: Yes.

KB: You did feel that? What did you feel?

Nicole: A touch on my back.

KB: How many times did you feel it?

Nicole: Twice.

KB: Twice. OK, extend your left arm out in front of you. Extend your left arm, OK. OK, keep it there. Be aware of the sensations, don't say anything, don't open your eyes, OK. Did you feel anything, there?

Nicole: Yes.

KB: What did you feel?

Nicole: Three –

KB: Like a tickling sensation?

Nicole: Yes.

KB: Can you show us where? OK, excellent. Open your eyes. I never touched you. I just touched his back, and I just touched his arm. A voodoo experiment. (Laughter) Yeah, I walk around nightclubs all night like this. (Laughter) You just take a

seat over here for a second. I'm going to use you again, in a moment. And can you take a seat right over here for me, if you don't mind. Sit right here.

Man: OK.

KB: OK, take a seat. Excellent, OK. Now, what I want you to do is look directly at me, OK, just take a deep breath in through your nose, letting it out through your mouth, and relax. Allow your eyes to close, on five, four, three, two, one – close your eyes right now. OK, now, I'm not hypnotizing you, I'm merely placing you in a heightened state of synchronicity, so our minds are along the same lines. And as you sink and drift and float into this relaxed state of mind, I'm going to take your left hand, and just place it up here.

And I want you to hold it there, just for a moment, and I only want you to allow your hand to sink and drift and float back to the tabletop at the same rate and speed as you drift and float into this relaxed state of awareness, and allow it to go all the way down to the tabletop. That's it, all the way down, all the way down, all the way down, and further, and further, and further, and further, and further, and further. Excellent. I want you to allow your hand to stick firmly to the tabletop. OK, now, allow it to stay there. OK, now, in a moment, you'll feel a certain pressure, OK, and I want you to be aware of the pressure. Just be aware of the pressure. And I only want you to allow your hand to float slowly back up from the tabletop as you feel the pressure release, but only when you feel the pressure release. Do you understand? Just answer yes or no. Do you understand?

Man: Yes.

KB: Hold it right there. OK, and only when you feel the pressure go back, I want you to allow your hand to slowly drift back to the table top, but only when you feel the pressure. (Laughter) OK, that was wonderfully done, let's try

it again.

Excellent. Now that you've got the idea, let's try something even more interesting. Allow it to stick firmly to the table top, keep your eyes closed. Can you stand up? OK, just stand, stage forward. I want you to point directly at his forehead, OK. Imagine a connection between you and him, only when you want the pressure to be released, make an upward gesture, like this, but only when you want the pressure to be released. You can wait as long as you want, but only when you want the pressure released. OK, let's try it again. OK, now, imagine the connection, OK. Point directly at his forehead, only when you want the pressure released, we'll try it again. OK, it worked that time, excellent. And hold it there, hold it there, both of you, hold it there, only when you want the pressure to go back, make a downward gesture. You can wait as long as you want. You did it pretty quickly, but it went down, OK.

Now, I want you to be aware that in a moment, when I snap my fingers, your eyes will open, again. It's OK to remember to forget, or forget to remember what happened. Most people ask you what the hell just happened up here? But it's OK that even though you're not hypnotized, you will forget everything that happened. (Laughter) On five, four, three, two one – open your eyes, wide awake. Give them a round of applause, as they go back to their seats. (Applause) OK, you can go back.

I once saw a film called "The Gods Are Crazy." Has anybody here seen that film? Yeah, yeah, yeah. (Applause) Do you remember when they threw the Coke bottle out of the airplane, and it landed on the ground and it didn't break? Now, see, that's because Coke bottles are solid. It's nearly impossible to break a Coke bottle. Do you want to try it? Good job. (Laughter) She's not taking any chances.

You see, psychokinesis is the paranormal influence of the mind on physical events and processes. For some magicians or mentalists sometimes the spoon will bend or melt, sometimes it

will not. Sometimes the object will slide across the table, sometimes it will not. It depends on how much energy you have that day, so on, and so forth. We're going to try an experiment in psychokinesis, right now. Come right over here, next to me. Excellent.

Now, have a look at the Coke bottle. Make sure it is solid, there's only one hole, and it's a normal Coke bottle. And you can whack it against the table, if you want. Be careful. Even though it's solid, I'm standing away. OK, I want you to pinch right here with two fingers and your thumb. Excellent. Now, I've got a shard of glass here, OK. I want you to examine the shard of glass. Be careful, because it is sharp. Just hold on to it for a moment. Now, hold it out here.

I want you to imagine, right now, a broken relationship from many years ago. I want you to imagine all the negative energy from that broken relationship, from that guy, being imparted into the broken piece of glass, which will represent him, OK. But I want you to take this very seriously. Stare at the glass, ignore everybody right here. In a moment you'll feel a certain sensation, OK, and when you feel that sensation, I want you to drop the piece of glass into the bottle. Think of that guy, that ba – that guy, (Laughter) I'm trying to be good here. OK, and when you feel the sensation – it might take a while – drop it into the glass. OK, drop it in.

Now, imagine all that negative energy in there. Imagine his name, and imagine him, inside the glass. And I want you to release that negative energy by shaking it from side to side. (Laughter) That was a lot of negative energy, built up in there. (Laughter) (Applause) I also want you to think of his name. Look at me and think of his name. Have you got his name? OK, think of how many letters in the title of his name. Think about how many letters in the title. There's five letters in the title. You didn't react to that, so it's four letters in the title. Think of one of the letters in the title. Think of one of the letters. There's a K in his name, there is a K. See

the way I knew that, because my name starts with a K also, but his name doesn't start with a K, it starts with an M. Tell Mike I said hello, the next time you see him. Was that his name?

Nicole: Mm-hmm. KB: OK, give her a round of applause. (Applause) Thank you. (Applause) I've got one more thing to share with you right now. Actually, Chris, I was going to pick you for this, but instead of picking you, can you hop up here and pick a victim for this next experiment? And it should be a male victim, that's the only thing.

Chris Anderson: Oh, OK.

KB: I was going to use you for this, but I decided I might want to come back another year. (Laughter)

CA: Well, to reward him for saying "eureka," and for selecting Michael Mercil to come and talk to us – Steve Jurvetson.

KB: OK, Steve, come on up here. (Applause)

CA: You knew!

KB: OK, Steve, I want you to take a seat, right behind here. Excellent. Now, Steve – oh, you can check underneath. Go ahead, I've no fancy assistants underneath there. They just, they insist that because I was a magician, put a nice black tablecloth on. There you are, OK. (Laughter) I've got four wooden plinths here, Steve. One, two, three and four. Now, they're all the exact same except this one obviously has a stainless steel spike sticking out of it. I want you to examine it, and make sure it's solid. Happy?

Steve Jurvetson: Mmm, yes.

KB: OK. Now, Steve, I'm going to stand in front of the table, OK, when I stand in front of the table, I want you to put the cups on the plinths, like this, in any order you want, and then mix them all up, so nobody has any idea where the spike

is, all right? SJ: No one in the audience?

KB: No one in the audience, and just to help you out, I'll block them from view, so nobody can see what you're doing. I'll also look away, so, go ahead and mix them up, now. OK, and tell me when you're done. (Laughter) You done?

SJ: Mmm, almost.

KB: Almost, oh. OK, you're making sure that's well hidden. Now – oh, we've got one here, we've got one here. (Applause) So, all right, we'll leave them like that. (Laughter) I'm going to have the last laugh, though. (Laughter) Now, Steve, you know where the spike is, but nobody else, does? Correct? But I don't want you to know either, so swivel around on your chair. They'll keep an eye on me to make sure I don't do anything funny, No, stay around, OK. Now, Steve, look back. So, now you don't know where the spike is, and I don't know where it is, either, OK. Now, is there any way to see through this blindfold?

SJ: Put this on?

KB: No, just is there any way to see through it?

SJ: Um-umm.

KB: No?

SJ: No, I can't see through it.

KB: You can't see through it. Excellent, OK. Now, I'm going to put on the blindfold. Don't stack them up, OK. Give them an extra mix up. Don't move the cups, because I don't want anybody to see where the spike is, but give the plinths an extra mix up, and then line them up, like this, all right? I'll put the blindfold on. Give them an extra mix up. No messing around this time. OK, go ahead, mix them up. My hand is at life, here, so – at risk. (Laughter) Tell me when you're done.

SJ: Done.

KB: OK, where are you? Put out your hand. Your right hand. Is that – no, OK. Tell me when I'm over a cup.

SJ: You're over a cup.

KB: I'm over a cup, right now?

SJ: Mm-hmm.

KB: Now, Steve, do you think it's here? Yes or no?

SJ: Oh! (Laughter)

KB: I told you I'd have the last laugh. (Laughter)

SJ: I don't think it's there.

KB: No? Good decision. (Laughter) (Applause) Now, if I go this way, is there another cup over here? SJ: Can we do the left hand?

KB: Oh, no, no, no. He asked me could he do the left hand. Absolutely not. (Laughter)

KB: Now, if I go this way, is there another cup?

SJ: There's a cup that way, yes.

KB: OK, tell me when to stop.

SJ: OK.

KB: There?

SJ: Yes, there's one.

KB: OK. Do you think it's here, yes or no? This is your decision, not mine. (Laughter)

SJ: I'm going to say no.

KB: Good decision. (Laughter) OK, give me both hands. Now, put them on both cups. Do you think the spike is under your left hand, or under your right hand?

SJ: Uh, neither.

KB: Neither, oh, OK. But if you were to guess. (Laughter)

SJ: I think it's under my right hand. KB: You think it's under your right hand? Now remember, you made all the decisions all along. Psychologists, figure this out. Have a look.

SJ: Oh! (Applause) Thank you.

Thank you. If anybody wants to see some sleight of hand later on, I'll be outside. Thank you. (Applause) Thank you.

Thank you. (Applause)

Jill Bolte Taylor: A stroke of insight

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

This presentation by neuroscientist Jill Bolte Taylor describes her own experience of having a stroke.

Jill Bolte Taylor: I grew up to study the brain because I have a brother who has been diagnosed with a brain disorder: schizophrenia. And as a sister and later, as a scientist, I wanted to understand why is it that I can take my dreams, I

can connect them to my reality, and I can make my dreams come true. What is it about my brother's brain and his schizophrenia that he cannot connect his dreams to a common and shared reality, so they instead become delusion?

So I dedicated my career to research into the severe mental illnesses. And I moved from my home state of Indiana to Boston, where I was working in the lab of Dr. Francine Benes, in the Harvard Department of Psychiatry. And in the lab, we were asking the question, "What are the biological differences between the brains of individuals who would be diagnosed as normal control, as compared with the brains of individuals diagnosed with schizophrenia, schizoaffective or bipolar disorder?"

So we were essentially mapping the microcircuitry of the brain: which cells are communicating with which cells, with which chemicals, and then in what quantities of those chemicals? So there was a lot of meaning in my life because I was performing this type of research during the day. But then in the evenings and on the weekends, I traveled as an advocate for NAMI, the National Alliance on Mental Illness. But on the morning of December 10, 1996, I woke up to discover that I had a brain disorder of my own. A blood vessel exploded in the left half of my brain. And in the course of four hours, I watched my brain completely deteriorate in its ability to process all information. On the morning of the hemorrhage, I could not walk, talk, read, write or recall any of my life. I essentially became an infant in a woman's body.

If you've ever seen a human brain, it's obvious that the two hemispheres are completely separate from one another. And I have brought for you a real human brain. So this is a real human brain.

This is the front of the brain, the back of brain with the spinal cord hanging down, and this is how it would be positioned inside of my head. And when you look at the brain,

it's obvious that the two cerebral cortices are completely separate from one another. For those of you who understand computers, our right hemisphere functions like a parallel processor, while our left hemisphere functions like a serial processor. The two hemispheres do communicate with one another through the corpus collosum, which is made up of some 300 million axonal fibers. But other than that, the two hemispheres are completely separate. Because they process information differently, each of our hemispheres think about different things, they care about different things, and, dare I say, they have very different personalities.

Excuse me. Thank you. It's been a joy. (Assistant: It has been.)

Our right hemisphere is all about this present moment. It's all about "right here, right now." Our right hemisphere, it thinks in pictures and it learns kinesthetically through the movement of our bodies. Information, in the form of energy, streams in simultaneously through all of our sensory systems and then it explodes into this enormous collage of what this present moment looks like, what this present moment smells like and tastes like, what it feels like and what it sounds like. I am an energy-being connected to the energy all around me through the consciousness of my right hemisphere. We are energy-beings connected to one another through the consciousness of our right hemispheres as one human family. And right here, right now, we are brothers and sisters on this planet, here to make the world a better place. And in this moment we are perfect, we are whole and we are beautiful.

My left hemisphere – our left hemisphere – is a very different place. Our left hemisphere thinks linearly and methodically. Our left hemisphere is all about the past and it's all about the future. Our left hemisphere is designed to take that enormous collage of the present moment and start picking out details, details and more details about those details. It then categorizes and organizes all that information, associates it

with everything in the past we've ever learned, and projects into the future all of our possibilities. And our left hemisphere thinks in language. It's that ongoing brain chatter that connects me and my internal world to my external world. It's that little voice that says to me, "Hey, you gotta remember to pick up bananas on your way home. I need them in the morning."

It's that calculating intelligence that reminds me when I have to do my laundry. But perhaps most important, it's that little voice that says to me, "I am. I am." And as soon as my left hemisphere says to me "I am," I become separate. I become a single solid individual, separate from the energy flow around me and separate from you. And this was the portion of my brain that I lost on the morning of my stroke.

On the morning of the stroke, I woke up to a pounding pain behind my left eye. And it was the kind of pain – caustic pain – that you get when you bite into ice cream. And it just gripped me – and then it released me. And then it just gripped me – and then it released me. And it was very unusual for me to ever experience any kind of pain, so I thought, OK, I'll just start my normal routine.

So I got up and I jumped onto my cardio glider, which is a full-body, full-exercise machine. And I'm jamming away on this thing, and I'm realizing that my hands look like primitive claws grasping onto the bar. And I thought, "That's very peculiar." And I looked down at my body and I thought, "Whoa, I'm a weird-looking thing." And it was as though my consciousness had shifted away from my normal perception of reality, where I'm the person on the machine having the experience, to some esoteric space where I'm witnessing myself having this experience.

And it was all very peculiar, and my headache was just getting worse. So I get off the machine, and I'm walking across my living room floor, and I realize that everything inside of my

body has slowed way down. And every step is very rigid and very deliberate. There's no fluidity to my pace, and there's this constriction in my area of perceptions, so I'm just focused on internal systems. And I'm standing in my bathroom getting ready to step into the shower, and I could actually hear the dialogue inside of my body. I heard a little voice saying, "OK. You muscles, you gotta contract. You muscles, you relax."

And then I lost my balance, and I'm propped up against the wall. And I look down at my arm and I realize that I can no longer define the boundaries of my body. I can't define where I begin and where I end, because the atoms and the molecules of my arm blended with the atoms and molecules of the wall. And all I could detect was this energy – energy.

And I'm asking myself, "What is wrong with me? What is going on?" And in that moment, my brain chatter – my left hemisphere brain chatter – went totally silent. Just like someone took a remote control and pushed the mute button. Total silence. And at first I was shocked to find myself inside of a silent mind. But then I was immediately captivated by the magnificence of the energy around me. And because I could no longer identify the boundaries of my body, I felt enormous and expansive. I felt at one with all the energy that was, and it was beautiful there.

Then all of a sudden my left hemisphere comes back online, and it says to me, "Hey! We got a problem! We got a problem! We gotta get some help." And I'm going, "Ahh! I got a problem. I got a problem." So it's like, "OK. OK. I got a problem."

But then I immediately drifted right back out into the consciousness – and I affectionately refer to this space as La La Land. But it was beautiful there. Imagine what it would be like to be totally disconnected from your brain chatter that connects you to the external world.

So here I am in this space, and my job – and any stress related to my job – it was gone. And I felt lighter in my body. And imagine: all of the relationships in the external world and any stressors related to any of those – they were gone. And I felt this sense of peacefulness. And imagine what it would feel like to lose 37 years of emotional baggage! (Laughter) Oh! I felt euphoria. Euphoria. It was beautiful.

And then, again, my left hemisphere comes online and it says, “Hey! You’ve got to pay attention. We’ve got to get help.” And I’m thinking, “I got to get help. I gotta focus.” So I get out of the shower and I mechanically dress and I’m walking around my apartment, and I’m thinking, “I gotta get to work. I gotta get to work Can I drive? Can I drive?”

And in that moment my right arm went totally paralyzed by my side. Then I realized, “Oh my gosh! I’m having a stroke! I’m having a stroke!”

And the next thing my brain says to me is, “Wow! This is so cool.” (Laughter) “This is so cool! How many brain scientists have the opportunity to study their own brain from the inside out?” (Laughter)

And then it crosses my mind: “But I’m a very busy woman!” (Laughter) “I don’t have time for a stroke!”

So I’m like, “OK, I can’t stop the stroke from happening, so I’ll do this for a week or two, and then I’ll get back to my routine. OK. So I gotta call help. I gotta call work.” I couldn’t remember the number at work, so I remembered, in my office I had a business card with my number on it. So I go into my business room, I pull out a three-inch stack of business cards. And I’m looking at the card on top and even though I could see clearly in my mind’s eye what my business card looked like, I couldn’t tell if this was my card or not because all I could see were pixels. And the pixels of the words blended with the pixels of the background and the pixels

of the symbols, and I just couldn't tell. And then I would wait for what I call a wave of clarity. And in that moment, I would be able to reattach to normal reality and I could tell that's not the card ... that's not the card ... that's not the card. It took me 45 minutes to get one inch down inside of that stack of cards. In the meantime, for 45 minutes, the hemorrhage is getting bigger in my left hemisphere. I do not understand numbers. I do not understand the telephone, but it's the only plan I have. So I take the phone pad and I put it right here. I take the business card, I put it right here, and I'm matching the shape of the squiggles on the card to the shape of the squiggles on the phone pad. But then I would drift back out into La La Land, and not remember when I came back if I'd already dialed those numbers. So I had to wield my paralyzed arm like a stump and cover the numbers as I went along and pushed them, so that as I would come back to normal reality, I'd be able to tell, "Yes, I've already dialed that number."

Eventually, the whole number gets dialed and I'm listening to the phone, and my colleague picks up the phone and he says to me, "Woo woo woo woo." (Laughter) And I think to myself, "Oh my gosh, he sounds like a Golden Retriever!"

And so I say to him – clear in my mind, I say to him: "This is Jill! I need help!" And what comes out of my voice is, "Woo woo woo woo woo." I'm thinking, "Oh my gosh, I sound like a Golden Retriever." So I couldn't know – I didn't know that I couldn't speak or understand language until I tried. So he recognizes that I need help and he gets me help.

And a little while later, I am riding in an ambulance from one hospital across Boston to [Massachusetts] General Hospital And I curl up into a little fetal ball. And just like a balloon with the last bit of air, just, just right out of the balloon, I just felt my energy lift and just – I felt my spirit surrender.

And in that moment, I knew that I was no longer the choreographer of my life. And either the doctors rescue my body and give me a second chance at life, or this was perhaps my moment of transition.

When I woke later that afternoon, I was shocked to discover that I was still alive. When I felt my spirit surrender, I said goodbye to my life. And my mind was now suspended between two very opposite planes of reality. Stimulation coming in through my sensory systems felt like pure pain. Light burned my brain like wildfire, and sounds were so loud and chaotic that I could not pick a voice out from the background noise, and I just wanted to escape. Because I could not identify the position of my body in space, I felt enormous and expansive, like a genie just liberated from her bottle. And my spirit soared free, like a great whale gliding through the sea of silent euphoria. Nirvana. I found Nirvana. And I remember thinking, there's no way I would ever be able to squeeze the enormosity of myself back inside this tiny little body.

But then I realized, "But I'm still alive! I'm still alive, and I have found Nirvana. And if I have found Nirvana and I'm still alive, then everyone who is alive can find Nirvana." And I pictured a world filled with beautiful, peaceful, compassionate, loving people who knew that they could come to this space at any time. And that they could purposely choose to step to the right of their left hemispheres and find this peace. And then I realized what a tremendous gift this experience could be, what a stroke of insight this could be, to how we live our lives. And it motivated me to recover.

Two and a half weeks after the hemorrhage, the surgeons went in and they removed a blood clot the size of a golf ball that was pushing on my language centers. Here I am with my mama, who is a true angel in my life. It took me eight years to completely recover.

So who are we? We are the life force power of the universe,

with manual dexterity and two cognitive minds. And we have the power to choose, moment by moment, who and how we want to be in the world. Right here, right now, I can step into the consciousness of my right hemisphere, where we are. I am the life-force power of the universe. I am the life-force power of the 50 trillion beautiful molecular geniuses that make up my form, at one with all that is. Or, I can choose to step into the consciousness of my left hemisphere, where I become a single individual, a solid. Separate from the flow, separate from you. I am Dr. Jill Bolte Taylor: intellectual, neuroanatomist. These are the “we” inside of me. Which would you choose? Which do you choose? And when? I believe that the more time we spend choosing to run the deep inner-peace circuitry of our right hemispheres, the more peace we will project into the world, and the more peaceful our planet will be.

And I thought that was an idea worth spreading.

====

Mike Rowe: Dirty Work

Mike Rowe, the presenter of the [Dirty Jobs](#) program on the Discovery Channel, suggests that we need to change our view of what work means: it's not just Blackberries and iPhones and comfortable offices.

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

The Dirty Jobs crew and I were called to a little town in

Colorado, called Craig. It's only a couple dozen square miles, it's in the Rockies. And the job in question was sheep rancher.

My role on the show, for those of you who haven't seen it – it's pretty simple. I'm an apprentice, and I work with the people who actually do the jobs in question. And my responsibilities are to simply try and keep up and give an honest account of what it's like to be these people, for one day in their life. Job in question – herding sheep. Great.

We go to Craig and we check in to a hotel and I realize the next day that castration is going to be an absolute part of this work. So, normally, I never do any research at all. But, this is a touchy subject, and I work for the Discovery Channel, and we want to portray accurately whatever it is we do, and we certainly want to do it with a lot of respect for the animals. So I called the Humane Society and I say "Look, I'm going to be castrating some lambs, Can you tell me the deal?"

And they're like, "Yeah, it's pretty straightforward." They use a band – basically a rubber band, like this, only a little smaller. This one was actually around the playing cards I got yesterday, but it had a certain familiarity to it.

And I said, "Well, what exactly is the process?"

And they said, "The band is applied to the tail, tightly. And then another band is applied to the scrotum, tightly. Blood flow is slowly retarded, a week later the parts in question fall off. "

"Great! Got it" OK, I call the SPCA to confirm this – they confirm it. I also call PETA, just for fun, and they don't like it, but they confirm it. OK, that's basically how you do it.

So the next day I go out. And I'm given a horse and we go get

the lambs and we take them to a pen that we built, and we go about the business of animal husbandry.

Melanie is the wife of Albert. Albert is the shepherd in question. Melanie picks up the lamb – two hands – one hand on both legs on the right, likewise on the left. Lamb goes on the post, she opens it up. Alright. Great. Albert goes in, I follow Albert, the crew is around. I always watch the process done the first time before I try it. Being an apprentice, you know, you do that. Albert reaches in his pocket to pull out, you know, this black rubber band but what comes out instead is a knife. And I'm like that's not rubber at all, you know. And he kind of flicked it open in a way that caught the sun that was just coming over the Rockies, it was very – it was, it was impressive.

In the space of about two seconds, Albert had the knife between the cartilage of the tail, right next to the butt of the lamb, and very quickly the tail was gone and in the bucket that I was holding. A second later with a big thumb and a well calloused forefinger, he had the scrotum, firmly in his grasp, and he pulled it toward him, like so, and he took the knife and he put it on the tip. Now you had think you know what's coming Michael, you don't, OK. He snips it, throws the tip over his shoulder, and then grabs the scrotum and pushes it upward, and then his head dips down, obscuring my view, but what I hear is a slurping sound, and a noise that sounds like velcro being yanked off a sticky wall and I am not even kidding.

Can we roll the video? No I'm kidding – we don't – I thought it best to talk in pictures.

So, I do something now I've never ever done on a Dirty Jobs shoot, ever. I say, "Time out. Stop." You guys know the show, we use take one, we don't do take two. There's no writing, there's no scripting, there's no nonsense. We don't fool around, we don't rehearse, we shoot what we get!

I said, "Stop. This is nuts. I mean, you know – This is crazy. We can't do this."

And Albert's like, "What?"

And I'm like, "I don't know what just happened, but there are testicles in this bucket and that's not how we do it."

And he said "Well, that's how we do it."

And I said, "Why would you do it this way?" And before I even let him explain, I said, "I want to do it the right way, with the rubber bands."

And he says, "Like the Humane Society?"

And I said, "Yes, like the Humane Society. Let's do something that doesn't make the lamb squeal and bleed – we're on in five continents, dude. We're on twice a day on the Discovery Channel – we can't do this."

He says, "OK." He goes to his box and he pulls out a bag of these little rubber bands. Melanie picks up another lamb, puts it on the post, band goes on the tail, band goes on the scrotum. Lamb goes on the ground, lamb takes two steps, falls down, gets up, shakes a little, takes another couple steps, falls down. I'm like, this is not a good sign for this lamb, at all. Gets up, walks to the corner, it's quivering, and it lies down and it's in obvious distress.

And I'm looking at the lamb and I say, "Albert, how long? When does he get up?"

He's like, "A day."

I said "A day! How long does it take them to fall off?"

"A week."

Meanwhile, the lamb that he had just did his little procedure on is, you know, he's just prancing around, bleeding stopped.

He's, you know, nibbling on some grass, frolicking. And I was just so blown away at how wrong I was, in that second. And I was reminded how utterly wrong I am, so much of the time. And I was especially reminded of what an ridiculously short straw I had that day because now I had to do what Albert had just done, and there are like 100 of these lambs in the pen, and suddenly this whole thing's starting to feel like a German porno, and I'm like ...

Melanie picks up the lamb, puts it on the post, opens it up. Albert hands me the knife. I go in, tail comes off. I go in, I grab the scrotum, tip comes off. Albert instructs, "Push it way up there." I do. "Push it further." I do.

The testicles emerge, they look like thumbs, coming right at you. And he says, "Bite 'em. Just bite 'em off." And I heard him, I heard all the words. Like, how did – how did I get here? How did – you know – I mean – how did I get here?

It's just – it's one of those moments where the brain goes off on it's own and suddenly, I'm standing there, in the Rockies, and all I can think of is the Aristotelian definition of a tragedy. You know, Aristotle says a tragedy is that moment when the hero comes face to face with his own identity.

And I'm like, "What is this jacked-up metaphor? I don't like what I'm thinking right now." And I can't get this thought out of my head, and I can't get that vision out of my sight, so I did what I had to do. I went in and I took them. I took them like this, and I yanked my face back. And I'm standing there with two testicles on my chin. And now I can't get – I can't shake the metaphor.

OK, I'm still in poetics, in Aristotle, and I'm thinking – out of nowhere, two terms come crashing into my head that I haven't heard since my classics professor in college drilled them there. And they are anagnorisis and peripeteia. Anagnorisis and peripeteia. Anagnorisis is the Greek word for

discovery. Literally, the transition from ignorance to knowledge is anagnorisis, what our network does, it's what Dirty Jobs is. And I'm up to my neck in anagnorises every single day. Great. The other word, peripeteia, that's the moment in the great tragedies, you know – Euripides and Sophocles – the moment where Oedipus has his moment, where he suddenly realizes that hot chick he's been sleeping with and having babies with is his mother. OK. That's peripety or peripeteia. And this metaphor in my head – I got anagnorisis and peripetia on my chin.

I got to tell you, it's such a great device though. When you start to look for peripetia, you find it everywhere. I mean, Bruce Willis in "The Sixth Sense," right? Spends the whole movie trying to help the little kid who sees dead people, and then, boom – oh, I'm dead – peripetia. You know? It's crushing when the audience sees it the right way. Neo in "The Matrix," you know? Oh, I'm living in a computer program – that's weird.

These discoveries that lead to sudden realizations. And I've been having them, over 200 dirty jobs, I have them all the time, but that one – that one drilled something home in a way that I just wasn't prepared for. And, as I stood there, looking at the happy lamb that I had just defiled – but it looked OK. Looking at that poor other little thing that I'd done it the right way on, and I just was struck by if I'm wrong about that and if I'm wrong so often, in a literal way, what other peripatetic misconceptions might I be able to comment upon?

Because, look, I'm not a social anthropologist but I have a friend who is. And I talk to him. And he says, "Hey Mike. Look, I don't know if your brain is interested in this sort of thing or not, but do you realize you've shot in every state? You've worked in mining, you've worked in fishing, you've worked in steel, you've worked in every major industry. You've had your back shoulder to shoulder with these guys that our politicians are desperate to relate to every four years,

right?"

I can still see Hillary doing the shots of rye, dribbling down her chin, with the steel workers. I mean, these are the people that I work with every single day. And if you have something to say about their thoughts, collectively, it might be time to think about it. Because, dude, you know, four years. You know, that's in my head, testicles are on my chin, thoughts are bouncing around. And, after that shoot, Dirty Jobs really didn't change, in terms of what the show is, but it changed for me, personally.

And now, when I talk about the show, I no longer just tell the story you heard and 190 like it. I do, but I also start to talk about some of the other things I got wrong, some of the other notions of work that I've just been assuming are sacrosanct, and they're not. People with dirty jobs are happier than you think. As a group, they're the happiest people I know. And I don't want to start whistling "Look for the Union Label," and all that happy worker crap. I'm just telling you that these are balanced people who do unthinkable work. Roadkill picker-uppers whistle while they work, I swear to God, I did it with them. They've got this amazing sort of symmetry to their life. and I see it over and over and over again.

So I started to wonder what would happen if we challenged some of these sacred cows. Follow your passion – we've been talking about it here for the last 36 hours. Follow your passion – what could possibly be wrong with that? Probably the worst advice I ever got. You know, follow your dreams and go broke, right? I mean, that's all I heard growing up. I didn't know what to do with my life, but I was told if you follow your passion, it's going to work out.

I can give you 30 examples, right now – Bob Combs, the pig farmer in Las Vegas who collects the uneaten scraps of food from the casinos and feeds them to his swine. Why?

Because there's so much protein in the stuff we don't eat his pigs grow at twice the normal speed, and he is one rich pig farmer, and he is good for the environment, and he spends his days doing this incredible service, and he smells like hell, but God bless him. He's making a great living. You ask him, "Did you follow your passion here?" and he'd laugh at you. The guy's worth – he just got offered like 60 million dollars for his farm and turned it down, outside of Vegas. He didn't follow his passion. He stepped back and he watched where everybody was going and he went the other way. And I hear that story over and over.

Matt Froind, a dairy farmer in New Canaan, Connecticut, who woke up one day and realized the crap from his cows was worth more than their milk, if he could use it to make these biodegradable flower pots. Now, he's selling them to Walmart. Follow his passion – the guy's – come on.

So I started to look at passion, I started to look at efficiency versus effectiveness, as Tim talked about earlier, that's a huge distinction. I started to look at teamwork and determination, and basically all those platitudes they call successories that hang with that schmaltzy art in boardrooms around the world right now. That stuff – it's suddenly all been turned on its head.

Safety – safety first is me going back to, you know, OSHA and PETA and the Humane Society. What if OSHA got it wrong? I mean, this is heresy, what I'm about to say, but what if it's really safety third? Right? No, I mean really. What I mean to say is I value my safety on these crazy jobs as much as the people that I'm working with, but the ones who really get it done, they're not out there talking about safety first. They know that other things come first – the business of doing the work comes first, the business of getting it done.

And I'll never forget, up in the Bering Sea, I was on a crab boat with the deadliest catch guys, which I also work on in

the first season. We're about 100 miles off the coast of Russia 50 foot seas, big waves, green water coming over the wheelhouse, right? Most hazardous environment I'd ever seen, and I was back with a guy, lashing the pots down. So, I'm 40 feet off the deck, which is like looking down at the top of your shoe, you know, and it's doing this in the ocean. Unspeakably dangerous.

I scamper down, I go into the wheelhouse and I say, with some level of incredulity, "Captain, OSHA."

And he says, "OSHA? – ocean." And he points out there. But in that moment, what he said next can't be repeated in the lower 48. It can't be repeated on any factory floor or any construction site. But he looked at me, and he said, "Son – he's my age, by the way, he calls me son, I love that – he says, "Son, I'm a captain of a crab boat. My responsibility is not to get you home alive. My responsibility is to get you home rich." You want to get home alive, that's on you. And for the rest of that day, safety first.

I was like – So, the idea that we create this false – this sense of complacency when all we do is talk about somebody else's responsibility as though it's our own, and vice versa. Anyhow, a whole lot of things. I could talk at length about the many little distinctions we made and the endless list of ways that I got it wrong. But, what it all comes down to is this. I formed a theory, and I'm going to share it now in my remaining two minutes and 30 seconds.

It goes like this – we've declared war on work, as a society, all of us. It's a civil war. It's a cold war, really. We didn't set out to do it and we didn't twist our mustache in some Machiavellian way, but we've done it. And we've waged this war on at least four fronts, certainly in Hollywood. The way we portray working people on TV, it's laughable. If there's a plumber, he's 300 pounds and he's got a giant buttcrack, admit it. You see him all the time. That's what

plumbers look like, right? We turn them into heroes, or we turn them into punchlines. That's what TV does. We try hard on Dirty Jobs not to do that, which is why I do the work and I don't cheat.

But, we've waged this war on Madison Avenue. I mean, so many of the commercials that come out there – in the way of a message, what's really being said? Your life would be better if you could work a little less, if you didn't have to work so hard, if you could get home a little earlier, if you could retire a little faster, if you could punch out a little sooner, it's all in there, over and over, again and again.

Washington – I can't even begin to talk about the deals and policies in place that affect the bottom line reality of the available jobs because I don't really know. I just know that that's a front in this war.

And right here guys, Silicon Valley I mean, how many people have an iPhone on them right now? How many people have their Blackberries? We're plugged in, we're connected. I would never suggest for a second that something bad has come out of the tech revolution. Good grief, not to this crowd. But I would suggest that innovation without imitation is a complete waste of time. And nobody celebrates imitation the way Dirty Jobs guys know it has to be done. Your iPhone without those people making the same interface, the same circuitry, the same board, over and over. All that – that's what makes it equally as possible as the genius that goes inside of it.

So, we've got this new toolbox, you know. Our tools today don't look like shovels and picks. They look like the stuff we walk around with. And so the collective effect of all of that has been this marginalization of lots and lots of jobs. And I realized, probably too late in this game – I hope not, because I don't know if I can do 200 more of these things, but we're going to do as many as we can. And to me the most important thing to know and to really come face to face with, is that

fact that I got it wrong about a lot of things, not just the testicles on my chin. I got a lot wrong.

So, we're thinking – by we, I mean me – that the thing to do is to talk about a PR campaign for work, manual labor, skilled labor. Somebody needs to be out there talking about the forgotten benefits I'm talking about grandfather stuff. The stuff a lot of us probably grew up with but we've kind of – you know, kind of lost a little.

Barack wants to create two and a half million jobs. The infrastructure is a huge deal. This war on work, that I suppose exists, has casualties like any other war. The infrastructure's the first one Declining trade school enrollments are the second one. Every single year, fewer electricians, fewer carpenters, fewer plumbers, fewer welders, fewer pipefitters, fewer steamfitters. The infrastructure jobs that everybody is talking about creating are those guys. The ones that have been in decline, over and over. In the meanwhile, we got two trillion dollars, at a minimum, according to the American Society of Civil Engineers, that we need to expend to even make a dent in the infrastructure which is currently rated at a D minus.

So, if I were running for anything, and I'm not, I would simply say that the jobs we hope to make and the jobs we hope to create aren't going to stick unless they're jobs that people want. And I know the point of this conference is to celebrate things that are near and dear to us, but I also know that clean and dirty aren't opposites. They're two sides of the same coin, just like innovation and imitation, like risk and responsibility, like peripetia and anagnorisis, like that poor little lamb, who I hope isn't quivering anymore, and like my time that's gone.

It's been great talking to you and get back to work, will you?

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.