

Dancing on Quicksand

Understanding and Managing Change in an Age of Uncertainty

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Synopsis:

It's a brand new wild and wired world. However, those who are responsible for making education happen - from the classroom teacher to the superintendent - have been prepared by a system that is geared for an age that no longer exists. This cannot continue if public education is to survive! This presentation looks at the technology-driven destabilization of our modern world from the perspective of the personal challenges individuals must face to be successful in a dizzying environment of accelerating change - where mindset will be more important than machines. The key to survival in an age of uncertainty is to learn how to dance on quicksand. Whether you are brand new to education, or only 2 year, 3 months, 4 days and 7 hours from retirement, this presentation is for you.

Handout:

Our goal for today

Let's consider the realities of the new high tech working world and outline some strategies for success in this world of constant change.

The way we were...the good old days

Most of us are children of late Industrial Age. Do you remember when life was relatively stable & predictable? Let's take a quick stroll down memory lane...

Ted's Dad

Studied Architecture at university - this prepared him for entire career - he worked for the same company for over 30 years in an era of jobs for life.

Life was predictable

There was a discernible pattern to life - one that involved the same daily routine - Mom stayed home just like other moms - Dad came home to sit down for dinner at 6:00 - there was an incredible steady rhythm to life.

Ian's Dad

Dropped out of school to go to war then went to work for a department store - he quickly climbed corporate ladder from clerk to department manager to store manager to general manager and finally to CEO - this was a very different time - he bought a house and car for cash - Mom stayed home - they put their kids through university - they saved money to take a two week holiday every year and eventually bought a summer place while still saving money to invest in their retirement.

Ted's first job

Ted dropped out of 2nd year university and was able to get a job in a mill within 5 days - the job paid great wages, offered lots of work & job protection from a union.

Ian's first job

Work was readily available and so Ian had summer jobs all through university working on construction - these were steady jobs that had great wages & job protection from the union.

Ian's brother

Finished grade 12 and then got a job in a warehouse for a department store - it was a relatively mindless job in which all he had to do was as he was told and made a good living.

Ted's sister-in-law, the bank teller

She worked in a bank - do you remember going to the bank? It was open from 10:00 am to 3:00 PM Monday to Friday. Do you remember back to the times when you would write checks and then rush off to the bank first thing Monday morning to cover them off? Do you remember when banks were departmentalized with specialists for everything from loans to investing.

Do you remember going to school?

School had a predictable steady pattern - arriving at 9 - leaving at 3 - bells & schedules - doing as you were told! - worksheets & textbooks - studying for term exams - memorizing content - using cheat sheets!

Do you remember post secondary education

Attending and graduating was the very definition of success in our society - going was a guarantee of a good job because if all else failed, insurance companies would hire literally any university grads regardless of their specific area of study

Then something really weird happened!

Ted's Dad was the GM of a major construction company - business was doing very well - then out of left field, at the age 58, and with no prior notice he meets with Board - they tell him that his efforts had made the company what it was - then they asked him to clean out his desk.

Ted's brother was the service manger for a major Toyota dealership – one day, he got called into the owner's office and told that he was the very best service manager that the dealership had ever had, but that the company is going through reorganization and so they had to let him go.

Ted's sister-in-law

She has been a bank teller for 14 years - then one day, the manager asked her into his office and told her what a great job she was doing - that there were many customers who actually came to that bank only because she was there - he then informed her that her job had been eliminated because of automation.

Ian's brother

John had 12 years experience in the warehouse of the same department store his father had worked for - 5 years ago he gets called in, told he was terrific worker but was that he was being

laid off because of automation and roboticization. Unlike the others however, he was offered a part time position - unfortunately with no benefits and for significantly less money. Unfortunately, it didn't stop there however - 4 years later he gets called in again, told he was a great worker and then laid off permanently because the automation initiative had been so successful that they had been able to reduce the floor shift in the warehouse from 400 workers to 15 workers with a higher level of productivity than they had with 400 people on a shift.

Our friends' children

Have you heard this song before? They graduated from university and then proceeded to move back in with their parents after they graduated because they couldn't find a job in their field of expertise - as a result, they were either reduced to working at a low paying job unrelated to their field of study, went back to get a graduate degree, or forced to attend a technical school to get the skills needed to qualify for a job.

The "recovery" of the 90's was unusual

The economic down turn of late 80's led to the recovery of the 90's – however, this was the first time where we saw a return to profitability without a simultaneous rise in employment.

Why did all of these things happen?

It's because the world has fundamentally changed – and as a result of these changes, life is not following the predictable patterns that it once did - it seems like there are new rules to the economy - rules that outwardly might seem bewildering & disorienting - so one might ask, what's going on here?

It's the Law of Change!!

There are significant indications that there are larger forces at work here - we appear to be living in a world where change has become the constant and the rate of change increasing. This has been primarily fueled by the development of a number of powerful new technologies. As a result - life now follows the Law of Change – it's a law that we simply can't ignore.

Change leads to technologically induced instability

As we look around our shiny new world, we see a great deal of evidence that technological development has and is destabilizing the status quo - this had lead to completely new ways of doing things as well as completely new way of thinking - as a result of these changes, things that had valued been valued (for a long time in many cases) are no longer valued – it is this that is upsetting the existing equilibrium.

Three (of several) destabilizing developments

#1 The microchip

In 1969 Ted Hoff at the Intel Corporation developed the microchip - in essence it was a computer on a chip - this development, which was largely unanticipated, has had an enormous impact on our world, in due course fundamentally changing the way many things were done – it must be emphasized that this was not just in some isolated sector of the economy, it was pervasive - changing just about everything. Within the framework of this handout, we cannot hope to do justice to all of the different areas that it has impacted, but let's take as an example

development of robotics.

Suddenly because of robotics, Japanese manufacturing were able to make little cars with a big impact - suddenly people stopped buying US made cars, because they could not get better cars cheaper - because of robots, the Matsushita manufacturing company, the world's largest manufacturer of refrigerators, were able to reduce the time it took to build one refrigerator from 360 hours to less than 3 hours - at the Chrysler K-Car plant, this allowed them to triple productivity with a work force half the size of the previous work force.

Such changes have resulted in the development of automated inventory systems, effectively putting Ian's brother John out of work and making him not only unemployed, but hopelessly unemployable – recently, this has allowed McDonalds to announce that within 18 months, you will be able to get fresh cooked food in less than 15 second using high speed laser cookers combined with ATM-like front ends.

This is just one of thousands of examples. More than anything else, all of these developments have and continue to lead to the elimination of jobs - destabilizing the balance between unions & management forever in the process.

#2 Networks

The interconnection of things which were previously unconnected tends to creates a new synergy - just consider the effect that the development of the electrical grid, the interstate highway networks and the telephone networks have had on America. Each in their own way resulted in massive changes in where, when & how we worked. Now consider computer networks and advances in telecommunications that resulted from new chip technology. In the course of 10 years we have seen the progression from stand-alone systems to worldwide inter-networking. This progression holds profound implications for all of us.

As an example, consider the effect that wide area networks have had on banking. The emergence of ATM's lead directly to the loss of thousands of jobs, including the one that Ted's sister in law had. We are seeing a similar impact on the communications systems and post office as a result of the emergence of e-mail & the World Wide Web. Do you remember the speed innovation of the 80's, the overnight letter? Now we only use the US Snail when we're not in a hurry. The same thing is beginning to happen to travel as a result of video teleconferencing. Increasingly people are using on-line E-tail purchases as a replacement of trips to the mall or the corner store.

I think back to the times when my Dad used to head off for 8 to 12 weeks a year on buying trips to New York, Toronto, and overseas to New Delhi and Hong Kong - now much the same thing is done using video teleconferencing.

All of these and many more developments are leading to fundamental and chronic instability – one clear trend is that there are fewer & fewer jobs for unskilled labor - there are changing ideas of the nature of management - we see flattening hierarchies and the end of middle management, the very thing which lead to job losses for Ted's dad & brother. This has also lead to the death of distance - there has never been a time where distance has meant less than it had to day. As a

direct result of networks, today wherever you are becomes the office - this has led to changing ideas about the nature of going to work, a changing concept of what and where the labor pool is, and increasingly the shipping of jobs off-shore where labor costs are significantly cheaper and labor laws are not nearly as stringent.

MIT's Nicholas Negroponte talks about the fact that in a digital world, we are rapidly moving from atoms to bits – from physical objects to digital 0's and 1's – the form they take left to the needs of the user – this has also led to a changing notion of what it means to wait for things - the emergence of ATM's, faxes, e-mail, on-line shopping, cellular phones, two way pagers and the increasing ability to access information anytime, anywhere is a strong indication of this.

#3 The evolution of computers

Ask yourself - what is a computer? When I mention computer, what do you think of? Because of the growth in technological power resulting from Moore's Law, we have seen a startling progression from mainframes to mini-computers, to desktop computers, to laptop computers, to palmtop computers, to wearable computers and in due course, to embedded computers. All this has led and will continue to lead to even more instability. These portable tools of personal empowerment are radically and rapidly changing the concept of the labor force.

As chips automate more and more production, America is quickly moving from a labor force to mind force. Couple this with changing concepts of reality that result from use of such as the Mentis computer – moving us from augmented reality to virtual reality and eventually to virtual existence forever altering of the notion of the who, what, when, where, why & how of learning. The emergence of such devices with their amazing ability to access information any time, anywhere means that learning can no longer be just be about memorization - simple regurgitation of facts doesn't work in an age of disposable information in which the amount of raw data is said will increase by at least twenty times between 1990 and 2000. And this is only the beginning!

Take a look at the new network economy that provides on-line, anywhere, anytime access to services, products and information. All this has led to a bewildering new set of rules that completely change what it means to be prepared for world of work

Then add Moore's Law to the mix. Gordon Moore was the cofounder and Chief Research Scientist of the Intel Corporation, the leading maker of microchips for computers in the world today. In 1965, in Electronics Magazine, half in jest he proposed Moore's Law, which suggested that technology doubled in processing power approximately every 18 months at the same time that the price for that technology declined by about 35% a year relative to this power. So far, Moore's prediction has been uncannily accurate. As a result, we have seen a remarkable growth in the processing power and speed of amazing new devices. In a recent Wired Magazine article, Gordon Moore indicated that there is absolutely no indication whatsoever that the rate of doubling will diminish for at least 10 - 15 years. If this is the case, extrapolating out to the year 2010 (when students who are presently in the primary grades will graduate from school) the impact of the doubling becomes so incredible as to almost be unbelievable...

Moore's Law kicks in

**Doubling in power every 18 months
Declining cost by 35% per year**

Year	1979	1984	1998	2010
RAM	16k	128k	16mb	10,640mb
Hard drive	128k	400k	2gb	1,230gb
Speed	2	10	166	110,390
Cost	\$5000	\$3900	\$1400	\$10

We know, we know - you don't believe us - we don't believe us either! But that's where Moore's Law appears to take us. If this is the case, that means that we not only will we be dealing with constant change but accelerating change. This leads us to a corollary to the law of technologically induced instability. The now and future reality is that since the pace of technologically driven change is accelerating, fundamental uncertainty will remain the foundation of life in the future. The cold hard truth is that for a vast majority of our world, this is already the case. This sets the stage for...

The Clash of the Titans

The impending battle will be between the rampaging juggernaut of technologically driven change and the amazing stability and historical resistance to change of the public education system. While there have been some challenges to date, these have been mere skirmishes. The real collision looms directly ahead.

There have been an interesting variety of responses to this impending clash. Some have become Luddites, actively denying, resisting, and in some cases subverting change efforts. Then there are the Observers who look accept that the world is changing, but believe that it is something that happens somewhere else to someone else (but not to them) And finally, there are the Participants who understand that if they don't change they will be more & more irrelevant. For the most part, we suspect that those are the people that we are talking to right now.

So the big question is, how do you begin to participate and, in doing so, start to make the transition from where you are to where you need to be? If we are to be successful, we will need a new and very different mindset than exist today – a mindset that requires us to consider new ways of thinking about things. The bottom line is that we just can't stand still resting on our laurels and the imagined perfection of the past. This message is particularly hard for many of us who remember back to a time when life used to provide a solid foundation to stand on. Living in an age of constant change means that things will only hold you up for short period. If you stop moving, quite simply you'll sink. Dealing with the future is like trying to stand on quicksand

The key to future success is to learn to dance on quicksand, and to learn to move quickly before you become mired. How can this be done?

8 Steps to Dancing on Quicksand

The fundamental inversion of Industrial Age thinking means everything has been turned upside down so don't be surprised if these steps sound really strange:

1. View success as an enemy

Huh??!!! I'm sure you're wondering what the heck we're talking about. The bottom line is that success tends to breed complacency, stifle creativity and as a result makes us less competitive. Think back to the movie 2001, A Space Odyssey, which came out in the late 60's - what airline was the one used to get passengers from the Earth to the Moon - why it was Pan Am of course - flown with them lately? - of course not, they've been out of business for some time now - but back in 1969 they were the biggest in the world - that's why it made sense for the producers of 2001 A Space Odyssey to use them. When was the last time you shopped at a Woolworths? - how about bought a computer from Commodore? At one time, each of these companies was at or near the top of their field - but not anymore. In fact, if you were to take a list of the Fortune 500 from December, 1985 and compare it with the Fortune 500 list for today, you would discover that more than 270 of the companies on the list from 1985 are no longer on the list - in fact, many of them no longer exist.

Let's consider viewing success as the enemy as the basis for considering who really won WW II? At the end of the war, Americans returned home to an economic infrastructure that was completely intact and took up basically where they had left off. Meanwhile in Germany and Japan, where little of the pre-war economic infrastructure remained, we saw widespread destruction and the related desperation through devastation. In order to survive, these countries were forced to start thinking outside the box in order to reinvent themselves. At first, at least on the surface, very little happened - as an example, in the early years, most of the products made in Japan were little more than cheap, imitation junk ... but that's certainly not the case anymore. Suddenly in the 70's we stopped buying American built cars, refrigerators, stereos, TV and other manufactured goods, and started buying Japanese products - was it because the American products were cheaper and better made? Obviously not. Complacency had set in for many American industries and it finally caught up with them.

In Tom Peters book Circle of Innovation, he describes the strategy for the 90's as "change direction & run like hell". Meanwhile, writer Robert Kriegel has written two best selling books - If It Ain't Broke, Break It; and Sacred Cows Make the Best Burgers. Is there a message embedded here somewhere? Now consider Sony - they completely replace their product line every 90 days - which brings a staggering new perspective to the notion of disposable income - but even though this may seem awfully quick, Sony hopes to reduce this cycle to 19 days by very early in the 21st Century - their corporate motto says, "let's reinvent ourselves today before someone else does it for us. Doesn't this sound like the motto for American schools?"

2. View discomfort as a friend

The golden rule of the future is that change is the only constant - change makes us feel uncomfortable (in fact the only people who don't experience stress are dead people) so you have to view discomfort as friend? If you're comfortable with where you're at, you're just not moving. All of us must learn to accept the looming affront of change. It's like a wave, we must

learn to get up on top of it and ride or run risk of becoming permanently embedded as part of the beach as the wave sweeps over us.

3. Be a Teflon person

We must learn to let go of things before they stick. In a fast changing world, attachment can be very dangerous because it can lead to resistance to change. We must all learn the principals of organized abandonment (knowing when to hold them and when to fold them) as well as the principals of composition/decomposition (for everything that we add, we will need to let go of something). Consider Lewis Galoob Toys – they are a shell company - all they do is develop ideas and then they contract out the manufacturing, the distribution, even the billing – they only sign contracts of 90 days duration so that they can be flexible should a new plant or a new product line appear. Compare this to Fischer Price who are an all-in-one toy manufacturer complete with their own factories. With a staff of 8, Lewis Galoob generates more than \$40 million of sales year. They are living proof of the principals of organized abandonment – that we must all learn to let go of our existing paradigms of life because, like it or not, obsolescence is guaranteed – we must all learn to undo & reinvent our thinking again and again.

4. Live each tomorrow like there's no today

Huh? Say what? The problem is that your eyes can deceive you and make you think you're seeing reality when you're only seeing history. We all need to learn to thin in future tense. Consider a hockey player – do they live in present? Wayne Gretzky says “I skate to where the puck is going to be, not to where it is.” Today, the world is a moving target – as a result, there is a greatly increased role for intuition because today is only useful as a pointer to tomorrow – as educators we need to be leading from the future and understand that the present is nothing more than the past of the future – our job is not just to prepare kids for today or tomorrow – it's also to prepare them for the countless days beyond tomorrow.

5. Don't work harder, work smarter

The bottom line is, you can't compete without technology. I wear glasses – I don't spend my time pondering why they work any more than I ponder how my car works – I just use them to do what I need to do – they become essential but transparent elements in my life. It's much the same way with new technologies – we need to learn to let go of what these technologies can do better and understand that their presence is not a threat but an aide – we must learn to let go and allow technology to help us redefine what it means to be human

6. Grab hold of what you can't touch

In the Industrial Age things were most important. Now in the Information Age the most valuable resources are in our heads and the non-material realities are most important – the new currency is human capital, information, processes and the learning that goes on

behind the physical realities in the virtual world - grabbing onto these is critical to future success.

7. Embrace the law of the Borg

The Industrial Age way of thinking broke things into parts, departments, bite size chunks – this led to turf wars and what we affectionately call the hardening of the categories – think of banks, insurance companies and schools (I only teach Math or worse, I only teach senior Math) - but increasingly, it's not about turf – it's about interrelationships - today these are widely perceived as being more important than isolated items. The Law of Borg says that power & profit come not from things done in isolation but from the interconnection of people, companies, and organizations. The key to future success is to be able to step back from the individual issues or items, to consider and reconsider things holistically then use this to restructure our traditional business & educational thinking.

8. Stay one step ahead of irrelevance

It's a simple fact of life, if you stop, you'll get passed by. In the future, you won't just be able to earn a living...you'll need to be learning living – learning and relearning as well as letting go of previous thinking – this is something you will never be able to stop today – learning today, learning tomorrow, learning forever

So what's the message here?

Simply put, change & learn or run the risk of becoming irrelevant. At all costs you don't want to be in the position of doing the wrong thing well - there is absolutely no interest or market for obsolete excellence. In the future you will be what you think – you need to live in future, because anything else is the past

We live in times of radical change...

In times of radical change, the learners inherit the earth...while the learned find themselves perfectly equipped for a world that no longer exists - Eric Hoffer

Change is the law of life...those who look only to the past or the present are certain to miss the future - John F. Kennedy

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