New Schools for a New Age
by Ian Jukes & Ted McCain

Synopsis
By now, most people have realized that the world is no longer the stable and predictable place that it once was. But just how fast is the world moving. There are many that are saying that the changes in the next 10 years will dwarf those of the last 50. What impact will this changing world have on education? And how can educators plan effective curriculum in an environment of accelerating change? This presentation examines some of the major new technologies that will fundamentally change the world in the next 10 years; explores the shift in curriculum and thinking that will be necessary to equip students for success in the brave new world of the 21st century, and identifies what this signifies for communities. How can schools prepare students for this world? Perhaps by focusing less on technology and more on information and new mindsets for those in the workplace. Participants should come prepared to have many of their present assumptions about education challenged. Counseling will be provided.

Context for today
- Change is subtle - Change is pervasive - Stability to change is constant - Time to stop investing in status quo - Provide a new vision for education - Not about technology - It's about people & mindsets

School as a train
- Faster - More efficient - More cars than ever before - doing many things well despite many expectations and demands

So what's the problem?
- Living in own world - Can't see beyond the end of noses -Education is largely disconnected from the rest of the world - isolation - World has been radically changed over the last 15 years - Dramatically different world than that of our experience - Office - everything has changed in 10 years - Schools - little has changed in 40 years -it's a different world
- Technology has fundamentally & irrevocably changed life - Not about change today, status quo tomorrow, but constant change - change today, change tomorrow, change forever
- Technology has compressed time & distance - we see history as it happens - World events as mini-series - we live in a smart embedded environment - has led to technological ubiquity

Education's response
- Improved the train - new cars/engines (technology) - add-on not perceived as essential - amazing stability & resistance to change
- Irrelevance has become the issue because we've missed the point - It's not about efficiency - It's about relevance - 1970s - with electronics the rest of the world switched to different track - Only part of story - new vehicles - 1980's - with increasing technological power the rest of the world got into a plane - We missed it - continued down the same old track - By year 2000 the rest of the world will be in a rocket- We still haven't grasped the significance of this

So what's fueling the rocket?
- Changing Vehicles - Technological power is doubling in 16.7 months - The power of exponential growth - Hybridization & synergy - What does this really mean? Have I got a deal for you - building an addition - 1 cent, 2 cents for 30 days costs millions - Last few days have the most impact

Here's the Connection?
- We're only at day 22 in the development of technology - Now see that these devices have some power - Not prepared for what's about to unfold

What Does This Mean?
- The grad class of 2010 - What world will they graduate into? - Extrapolate technological power - next 13 years - Staggering impacts on work, school, leisure, and society - Hard to conceive because we have no context for this kind of rapid change - But it's happening <u>especially</u> outside education - We just can't ignore it - We all know something big is happening - Problem - we want new result but act in same way - Can't just tinker - Need fundamental changes - Clock ticking - last minutism won't work

So where do we begin?
- Don't believe your eyes - Can't base decisions just on what exists today - Already obsolete - Sony & 90 days - You ain't seen nothing yet - Year 2000 - Sony & 18 days - Sony's slogan - "Today let's put ourselves out of business because if we don't, someone else will"

How can we deal with this fast paced change?
- How do you anticipate the necessary changes? Live life like a quarterback - Must use your intuition - Not mystical crystal ball - Reasoned extrapolation of trends occurring now - We are working with a moving target - Look at education through the lens of emerging technologies - So let's do it - where will learning be in 13 years? What will education look like in the year 2010?

Not confined to single place -
- Shock to many - Not confined to classroom - Not confined to public system Anyone, anywhere access to world-wide resources with personal, wireless, pocket tiny tech - Learning at home - Learning on the job - Learning in the community - Learning is wherever you are

Not confined to a time
- 24 hour a day access - Learning will be interest and/or needs driven - Need to know basis - Just in time learning

Not confined to a single person
- No longer a single teacher - Parents, community, work place - Language no barrier - Augment traditional roles and responsibilities in learning

Not confined to human teachers
- Gulf War laser head sets as immediate feed- back personal learning systems -Personal adaptive learning systems Virtual reality - Smart agents - Powerful searching tools that learn about your needs - Expert systems - medicine to mechanics - Must embrace partnership with non-human electronic assistants - Not either/or - both - this makes the older generation uneasy - Not so for Nintendo generation

Not confined to paper based information
- Strategic alliances - new multimedia info resources - Two way interactive video - Virtual experiences - Virtual field trips - From physical visits - To psychically televisit geographically scattered sacred sites of learning - virtual Smithsonian - museums

Not confined to memorization
- Academic success has been based on one's ability to memorize - Shift from equating success with rote learning - Just doesn't work with disposable information - Powerful search engines - Shift to generalists with effective analytical processing skills (Bloom) - Not just what you can remember - What you can perceive about information and how you apply your knowledge

Not confined to linear learning
- Technology allows learners to jump into the middle & go backwards as necessary - Learning webs - personal pathways - Moving through conceptual space at the speed of thought

Not confined to the intellectual elite
- Smart devices - technology becomes great equalizer - Allows ordinary people to do extraordinary things - New power elite - from literati to digerati - A shift in the concept of being disabled - The newly disabled are those unable or unwilling to change as world changes around them

Not confined to childhood
- Used to be learning in your youth prepared you for your career - Learning in the 21st century must be a life-long endeavor - Today, tomorrow, forever

Not confined to controlling learners
- Used to be predetermined pre-defined generic cookie-cutter curriculum - One size fits all (just not very well) - Now it's about empowering individuals - learner centered personal relevance - Problem - we've been trained to be firefighters - Now we need to be arsonist - Need to create a roaring blaze in kids that sustains itself for a lifetime

We need new schools for a new age
- Technology will force us to redefine education - Not here yet but... -Remember "I've got a deal for you!" -Changes of enormous magnitude will occur so quickly - We must make massive preparations right now - Can't wait 'til it happens

We need a new curriculum for a new age
- Not focused on the world of today - Forward looking to skill base for graduating class of 2010 & beyond -Curriculum that survives in an environment of accelerating change

Shift from content-driven to process-driven curriculum
- Processes are only things that remain in times of rapid change - skills we currently teach will remain: Reading, Writing, Mathematics - These are process skills

Process skills we need to add
1. Communication skills - Speaking - Listening - but need to make them explicit - Why? - critical skills needed to be an effective member of a family, community, business
2. Technical reading and writing - need to differentiate between literary reading & writing - Reading novels vs computer screens - Not either/or - both
3. Technical reasoning skills -Essential reasoning skills in a technological world - Applied Physics - Logic - Probability - Statistics - Measurement systems - Numerically controlled systems
4. Problem solving and critical thinking - Analytical skills for accessing & applying information to real world situations - Application of a structured problem solving process in all subject areas - Define, design, develop, determine
5. Information literacy - Moving beyond simple data to significant information - Determining trends in a rapidly changing world - Incorporating complex - searching techniques
into question asking - Determining appropriate media for specific projects - Accessing a variety of info resources world-wide - Understanding the graphical world - Seeing technical manipulation & bias in a multimedia environment
6. Technology as a tool - Focus on tasks with technology as vehicle - Living in the smart environment - Working smarter - not just harder - Letting go of what technology can do better
7. New personal skills - Goal setting - Self assessment skills - Entrepreneurship - Team learning/working - Time management - Stress management for an environment of unrelenting change
8. New mindset skills - Must teach students to live like quarterbacks developing their intuition - Failing is good - Valuing stupid, crazy, off the wall ideas - Fostering creative thinking
9. Beef stew curriculum - We teach meat, potatos & carrots as separate courses - The assembly line approach - But life is a stew - Interrelated experience vs departmentalized mindset - Departments are out - holistic learning is in

What does all of this mean?
New roles for educators
1. Educators as futurist - Living life as a quarterback - Intuition - To keep curriculum current - To model process for students - Get used to the affront of change - Surf's up!!!
2. Educators as process instructors - New technology will handle ritualistic tasks - Alphabet, spelling, multiplication tables - But to teach higher -level processes - you need a process oriented teacher
3. Educator as guide - No longer vessel filler - Pointing way to access information - Teaching navigation skills - Teaching them to fish vs fishing for them
4. Educator as "wise guy" Wisdom - historically a higher level skill - Extracting meaning - significance of data Perceiving trends - Seeing bias - These skills need to be valued in an ever changing world
5. Educator as modeler - Kids follow model of what we do - Follow model of what we don't do - the null curriculum Modeler of thought processes needed for success in new global digital reality
6. Educator as learner - From teaching subject to teaching kids to learning with kids - Powerful teaching strategy - Absolutely required to maintain relevancy

We all need training for this
1. Massive retooling of educators - Now and forever - Not "one shotism" - Not technology focus - Pedagogical focus - Use of new tools is not optional in the world that students graduate into
2. Use of tools by teachers cannot be optional

So what's the starting point?
- We must define the gap - Start by helping others understand that it's a new world out there - That change is absolutely essential to make schools relevant
- We must rethink - Schools - Classrooms - Curriculum - Educational management - Redefine success - Rethink learning & what it means to be educated

But wait a minute...
- You can forget all I've said - Monday morning when they close the door it could just as easily be 1950 or 1920 - If you want significant change... - It's more than defining the gap... - Must result in philosophical realignment - Must translate into changes in attitudes and mindsets - Which is the basis of true curricular change
- It's not a hardware issue - It's a headware issue - We need a new mindset - To prepare students for their future not our past - Not just to serve what is - But shape what can & might be - Their future (and ours) depends on it

You as futurist
- from contemplating here & now to strategic planning for future - before we talk about what we do today, must visualize future - not technology but social power of technology to fundamentally transform

A starting point...
- Start by acknowledging that adults live in old paradigm - kids live in new - we just don't relate to their present let alone their future - problem is relevance - must focus on bringing about conceptual shift - need to change our mindset
- don't try to change if society & schools attain everything that you aspire for easy to throw up your hands - but understand that trouble in life doesn't come from aiming to high and missing the mark, it comes from aiming too low and hitting the mark every time

Making change
- sense of overwhelm & hopelessness - blue whales vs. school of fish - fish turn one at time until critical mass - when fish turn, there is conflict - but when it's right, they all turn - this is exactly what happened in Berlin, seatbelts, drinking/driving = overnight successes years in making - we need to get

beyond terminal overwhelm and stop being yabbuts - stop waiting for others to start - we need to get moving!!!! - our futures and our children's depend on it

It all starts with us
• personal challenge to each of you - if it's going to be longest journey - there is one thing worse than not being able to see, and it's being able to see and having no vision.....

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