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The Revolution in Education
by
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The classroom as we have known it, is about to change. For 150 years, regimentation, graded advancement, rote learning, along with bells and whistles have been the hallmark of Industrial Era education. As we progress into Information Age of the 21st Century, however, education is going to evolve as a direct response to the changing nature of society.

The rapid developments in communication technology and international commercial activity have affected the very nature of society: How people live, work and interact. Indeed, how we work, where we work and what we do are being redefined. These developments in global commerce and communication are so fundamental that some 25% of the jobs young adults will enter in the next 20 years have not even been invented yet.

I suggest that slowly but surely we are experiencing social, technological and commercial change that is inspiring a revolution in education. Not since the Scottish King James VI began the radical change in education 250 years ago to give children access to school and universities, have we known a change in the models of education we are now to experience. This 'revolution' we are currently experiencing is causing a genuine shift again in the paradigm, or the mode of thinking, for schooling and education.

History, when viewed from the perspective of the development of technology, has experienced three great eras: The Agricultural Era, the Industrial Era, and now the Information Era. The Twentieth Century marked the height of the Industrial Era with more rapid change in economics and technology than the rest of history. By way of illustration; in 1900, US agriculture accounted for some 50% of that country's economic production, and manufacturing accounted for some 22%. By 1960, agriculture had declined to just 10%, with manufacturing growing to 45%. By 2000, manufacturing accounted for 15% and agriculture 2% of economic production, while the service industries, including IT, had grown to more than 70%.

One of the great achievements of the Twentieth Century was, no doubt, the development of the public school system. But in truth, just as the Industrial Era coloured the nature of business and government, so governments controlled the nature of education to suit the needs of industry and economic advancement. The meaning and value of education was coloured by the meaning and value of work and industrial progress.

In the new Information Era, commercial value arises not from what people produce but from what people know. In the Information Era, education is advancing beyond being the steroid for industrial work. Education and learning now literally fill the air as the internet brings information into our very homes and even our phones.

The world's technological capabilities have increased faster over the past 30 years than any other time in history, which sounds exciting, and it is, but we are experiencing tremendous social and economic turmoil in the process. As this new era takes shape, we should realise that we are the

last generation of the Industrial Era and the first generation of this new Information Era. We are now in a new and demanding world focused on knowledge and knowledge management that is redefining the parameters of education.

I suggest that the emerging changes to education are taking place on three plains simultaneously: First, there is a move to understand how children actually learn and to focus on developing children's intelligence and talents; second, there is a move toward specialised schooling and course specialisation streaming; and third, developments in communication and e-learning technologies are creating new modes of teaching and learning.

The Focus on Learning.

Schooling across the world is quietly changing as the focus moves away from what's on the blackboard to how children actually learn.

This change of focus has a profound impact on teaching and the whole approach or pedagogy of teaching. In progressive schools children now get individual education plans to identify their learning strengths and their pathway to improving their learning and knowledge. And as teachers everywhere experiment with presentation, teaching methods and assessment, the one common feature is a new emphasis on interactive learning. As a result, children are encouraged to think – to ask questions, use their imagination and develop their learning skills.

The fascinating thing about the changing classroom is that the research that has stimulated the change has not come from the study of academic achievements or child performance, but from medical research into neuro-physiological development and how the brain functions and learns.

The conclusion of this research is that properly functioning sensory systems of the body-mind are fundamental for an efficient brain. Indeed, it is possible to talk about neuro-efficiency, or getting the best out of your brain.

The revelation for the teaching profession is that learning is implicitly a neurological function and the capacity to learn is dependent upon neurological efficiency. Where the brain is not properly receiving sensory input, and/or not integrating sensory information properly, learning is belated. Conversely, where the neuro-physiological systems of a child are encouraged or stimulated, learning capacity and learning activity increases. That is to say, it is possible to improve the functions of the brain and the integration of information to enable children to be better learners.

There are two fundamentally important realisations from this research on how people learn: First, people learn differently and, indeed, boys and girls learn differently because of their different neurological makeup. Second, learning ability can be accelerated to improve children's academic achievement and to develop their gifts and talents.

As classroom teaching shifts its focus onto how children learn and as curriculums cater to support learning development, so there is now a new generation of trained teachers emerging with a whole new approach to helping children achieve the best, and enjoy the learning adventure in the process.

The Advent of Specialised Schools

As we progress into Information Age of the 21st century, education is going to progress toward offering more specialised knowledge to students. This in turn will give rise to boutique schools offering specialised courses and programmes. These specialised, high-tech schools, or smart schools, will operate on a full e-learning environment and offer course specialisation streaming for career-directed education. These advances in schooling arise due to advancing technology and education methods but also as a direct response to the changing nature of education itself.

The first noticeable shift in the nature of education is the steady move by governments in Western countries to get out of providing public services. Because governments can't afford the expense of public infrastructure, government schools are falling further behind the quality of education offered by private schools.

The second trend influencing the nature of school education is the growth of private school associations and conglomerates. In the past, schools and universities were fairly independent entities. Over the past 30 years, universities have sought to recognise and align with other universities as part of the need to raise more income and gather more students. In the same vein, private schools are now aligning with like-minded institutions or are part of conglomerates of schools owned by private companies.

The next and third phase in education will see schools aligning with universities. The consequence will be the development of education strata-schemes: Children entering primary school will traverse all the way through high school and into their school's associated university.

The influence of universities upon school education will be significant. As commercial companies aligning with universities in order to influence education to suit their particular employment requirements and as universities influence school education, so schools will start to offer course streaming to cater for career specialisation.

I believe that five core education specialisation will define and characterise universities and schools: Business Management, Applied Sciences, Communications and Media Production, Performance and Stage Production, and Information-Communication Technology.

In Business Managements, schools will offer derivative subjects such marketing, financial management, business management and commercial law.

In the Applied Sciences, courses in science will be relabelled to suit career pathways. Biology, physics and chemistry will be there but show up under subjects like anatomy, physiology, marine biology and meteorology.

In Communication and Media Production, schools will teach public relations, advertising, writing for media and production design.

Under Performance and Stage Production, offerings will include stage production, performance and acting, lighting and sound engineering, choreography and sets design.

Under Information–Communication Technology, students will be able to study such subjects as animation, web design, and, yes, senior high schools will look like and operate like university campuses.

These developments are exciting and teachers all across the world are caught up in a wave of innovation and creative thinking. The classroom is not what it was 30 years ago and in the next decade will evolve further. Within 10 years time, students finishing from smart-schools will have as much knowledge in particular fields as students finishing university today.

Information-Communication Technology: A Genesis Story

It is highly likely that within 10 years handwriting skills among school and university students will be outmoded and become a skill of the past. The use of computers and portable communication devises are no so pervasive that this prediction is not outlandish.

While the computer technology had its birth in 1945 in association with the American defence industry, it took off in 1975, with Paul Allan and Bill Gates established Microsoft and in 1976, with Steven Jobs and Stephen Wozniak started Apple Computer.

Today, there are more than 200 million websites with more than 1.5 billion people using the internet. Communication opportunities, along side of computer technology, are now immense. And the impact upon education is still unfolding as educators play with how to use Information Communication Technology (ICT) in school.

Most schools, in Western countries at least, are now on the internet. Every school seems to have a webpage. School timetables, registration, calendars and contact details are all listed. And, as we know, most schools have an IT lab and teach computer literacy. Many have whiteboards with internet connection for the teacher to access information in the class. And, a growing number also have intra-net systems across the school for in-class curriculum support information delivery.

The thing, of course, is that while schools think and plan about how they are going to shift into an ICT world, the students are already there. In the United States, for example, more than 60% of children between ages 8 to 12 now have a mobile phone. More than 80% of youth between the ages of 12 and 18 have mobile phones and 90% have a computer or have regular use of the internet. Some 80% of American youth spend up to 7 hours a day using electronic media of some form.

However, there needs to be a caution sticker on every computer: "Limited Learning Device". The internet and e-learning system of responsive learning is attractive to children and youth because of its simplistic one-step logic, but it is dangerous to neuro-physiological development of children if it is not bridled by the personal experience of interactive teaching and learning where reasoning, problem solving, imagination and creativity are developed. When the focus in the classroom is on good teaching, the use of ICT takes on a new perspective of an amazing window on the world of knowledge and learning, but ICT and the computer have to be used within a wider learning context.

While the Information Age is upon us, and yes, there is likely to be a move away from paper-work to virtual-work and writing could become a skill of the past, we stand on a turning point in time as we all experience this metamorphosis in education and learning.