Brave New World: The Changing Landscape of Education and Technology
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In the era of Facebook and Youtube, not only are people doing business differently and interacting differently. People are learning differently. The rise of technology in education is driven by new modes of education. The rise of e-learning centers, virtual classrooms, and open-source materials spells greater opportunities for technology solutions providers. In fact, the global education market is worth $2.3 trillion, while e-learning, a thriving sub-sector, is forecast to exceed $69 billion by 2015\(^1\). Spire takes a closer look at the market for Information and Communication Technology (ICT) in Education.

Emerging countries are home to 5 billion out of the world’s total human population of over 6 billion. Historically, education systems in emerging countries have been riddled with problems, ranging from under-penetration of schools and high drop-out rates to under-funding and teacher shortages.

However with emerging nations now leading global economic growth, governments, NGOs and firms are investing heavily in both public and private education. This investment stems from the (correct) perception that education holds the key to sustainable economic growth in the long-term. It is also driven by private companies seeking to meet the rising demand for private education services to complement, or substitute for, public ones.

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Private schools at all levels are mushrooming across the emerging world, offering services ranging from pre-school teaching to post-graduate distance learning and English language training.

Amidst this change, the application of technology to the education sector is a field that is poised for exciting development in terms of both innovation and market potential. Relative to the countries of the OECD, emerging countries are challenged by a relative lack of established schools and faculty. Technology can help to remedy this problem, by allowing education service providers to leverage existing content and off-shore professionals. The benefits to be gained in the competition for market share in this segment are immense. They go beyond short-term revenues to encompass the ability to set usage habits, product and brand preferences amongst the consumers of the future.

**New technologies for the Education sector**

Before considering the market opportunities in emerging world education, it is appropriate to scan the technologies transforming education in the 21st century.

**E-Books and e-book readers** - E-books and e-book readers, which have been used in some classrooms in the US, are becoming popular in leading schools in Asia. Similarly, audio books or podcasts are gaining popularity as educational tools – allowing greater flexibility for students in terms of how they consume teaching content.
**Educational social media** – In a similar vein, online chalkboards and social networking sites have become legitimate channels for learning, sharing, and communication between teachers and students.

**Open Learning** - Open and distance learning has increased in Asia. Students obtain their material online and, in some cases, attend classes online. With over 70 universities promoting open access learning, there has been mounting pressure on higher education institutions to raise the quality of their information and communication technologies (ICT). Traditional university campuses have begun to create open-learning programs. Virtual universities in Asia include the Asia International University in Macau, China; the Hanoi Open University; the Bangladesh Open University; the Open University of Malaysia; the Open Distance-Learning Program in Singapore; and many more².

**Online Tutorials** - English language tutorials, including ESL (English as a Second Language) test preparations, are also available online. Most customers hail from countries in North Asia, such as Japan and South Korea, or Eastern European nations, like the Czech Republic. Due to the relatively high cost of labor in developed nations like Japan and South Korea, ESL tutorials are typically outsourced to countries with lower labor costs. These include the Philippines and India, where English is widely spoken. Sessions are carried out using voice over internet (VOIP) telephony service providers such as Skype.

Tutorials are also available for other subjects, especially Mathematics and Science. For such services, gadgets such as virtual chalkboards and web

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and video conferencing software such as MegaMeeting.com are adopted.

The implication of these trends is a rising demand for hardware, software, telecommunications infrastructure and related services used in executing these online sessions.

**Mobile Learning (M-learning)** - The use of mobile phones to connect with school systems and engage in learning activities, known as Mobile Learning or MLearning, is a major new technology frontier in education.

Mobile phones today are rapidly evolving into platforms for collaboration, knowledge access and performance support. Phones can be used to deliver educational content, as well as updates and alerts, not to mention playing audio and video content. Through M-Learning, schools can provide maps and directions, conduct quizzes, tests, surveys, and much more.

**Companies and Education service providers: partnership and CSR models**

*In China alone, there were about six million fresh college graduates in 2009.*

The attraction of the education segment to marketers is obvious. The student segment offers a sizable community of customers with aligned needs. In China alone, there were about six million fresh college graduates in 2009, for example.

In addressing this sector, many leading companies see advantages in partnership and corporate social responsibility (CSR) models of sector-specific engagement. This is due to the widespread association of the
education sector with social goals such as equality of opportunity for children. Furthermore, many firms recognize the longer-term benefits of a strong footprint in the education segment:

- Branding is enhanced by being associated with prestigious educational institutions.

- A positive relationship between consumers and the brand is created, influencing customers before they are ready to buy a company’s products (in the case of child and youth education at any rate).

- Users who were trained to use specific gadgets or software tend to stay with the brand they “grew up with” when they go out into the marketplace and become paying customers. This holds true for both consumer as well as B2B solutions, ranging from PCs and Notebooks used by individuals to engineering software and medical devices used by companies.

**Companies at work in the Education sector**

The examples of companies pursuing such engagement models in the Asia-Pacific region are legion.

**Hewlett Packard (HP)** – HP’s Innovation in Education (IIE) program is a partnership with the International Society for Technology in Education (www.iste.org). In 2009, the HP IIE Program awarded US $ 3.1 million in the
form of grants, training courses and equipment to 27 secondary schools and universities across Asia³.

**Intel** - Intel has a Teach Essentials Course which equips teachers with various technology-related skills. Over 5 million teachers from over 40 countries have participated in the program⁴.

**IBM** - IBM India supports education for children across the country. Aside from partnerships with several educational institutions in India, IBM has a number of Corporate Social Responsibility (CSR) programs directed at students and children:

- IBM’s IT Center in Mumbai, in partnership with Victoria Memorial School for the Blind, imparts IT education to visually impaired people.

- The IBM KidSmart Early Learning program introduces technology to disadvantaged pre-schoolers using age-appropriate software developed by IBM.

- IBM’s Tryscience provides multimedia adventure field trips for museum visitors, mostly students and their teachers and parents.

**Texas Instruments (TI)** - In Singapore, Texas instruments opened a joint laboratory with the Republic Polytechnic (RP) School of Engineering, focusing on research and innovation applications.

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³ HP Press Release, Twenty-eight schools and universities across Asia Pacific granted USD $3.7 million through 2009 HP Innovations in Education Program, 27 May 2009

⁴ Intel White Paper, Preparing Future Teachers for 21st Century Learning: Partnerships that enhance the capacity of pre-service education
TI also works in conjunction with educators from China, Hong Kong, Malaysia, the Philippines, and Singapore, to create technology-based programs, materials, and applications to improve student testing scores as well as teacher development. TI sponsors workshops, conferences and other related professional development programs.

Success stories: how corporate engagement with the Education sector lifted market performance

Microsoft Certified Professional Program - An example of a successful online education and certification program initiated by a technology vendor is the Microsoft Online Certification Program. This includes numerous tracks, such as Microsoft Certified Professional (MCP). Each track would require aspiring IT professionals to pass several examinations in order to be certified. Training courses are offered by Microsoft’s education partners.

Other software companies such as Oracle, Cisco, and IBM have their own learning and certification programs.

An indirect benefit of such programs is the resulting acceptance of the certifier’s software. Having more IT professionals trained in the use of their software increases adoption and use by companies and individuals.

Texas Instruments (TI) – TI is an example of a firm that has successfully embedded its products into certain institutions’ instructional systems, textbooks or software applications.
For example, some books and courseware used in MBA schools, Finance classes and even high school textbooks such as Paul Foerster’s “Calculus Explorations” teach students how to perform calculations using Texas Instruments (TI) calculators.

Another TI product is the TI-Nspire graphing calculator, targeted specifically at students. The device features a “testing mode” which prevents the user from accessing files and geometry features during a test. It also comes with a timer that not only indicates the time but also whether the mode had been changed during testing. Students taking their examinations can use the TI-Nspire calculators.

As the TI-Nspire (with touchpad handheld) is one of the few calculators permitted during the International Baccalaureate (IB) Examinations, students are required to purchase the product while schools and teachers incorporate the use of the gadget in their lessons to better prepare students for IB exams.

Casio sells a Financial Consultant (FC-100) calculator which is the only calculator used by Prudential Financial, Inc. in training their financial consultants.

**Software** - the Adobe Creative Suite, which includes Photoshop and Pagemaker, is commonly used in design schools. By the same token, students of architecture, engineering, and interior design are usually

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5 Texas Instruments News Center, Texas Instruments Introduces New TI-Nspire™ with Touchpad Graphing Calculator Handheld, 19 April 2010
trained to use AutoCAD for modeling. When these students go out into the professional world, they tend to use the same software that they “grew up with.”

**Governments embrace ICT in Education**

The virtually limitless possibilities created by applying ICT to the education sector have prompted forward-looking Education Ministries in Asia to formulate national plans for ICT. Such plans typically aim to raise the general level of technology-intensity in education, so as to enhance efficiency and effectiveness, while at the same time realizing cost-efficiencies from the government’s centralization of ICT procurement.

In the Philippines, for example, the Department of Education-ICT4E (Information Communication Technology for Education) developed the Text2teach project together with corporate partners Nokia, Pearson, The Ayala Foundation, Globe Telecom and SEAMEAO-INNOTECH.

This program provided interactive multimedia sessions in classrooms, covering 480 teacher lesson plans and also integrating 370 science, Mathematics, and English lessons via videos deployed in classrooms.

In Singapore, the Ministry of Education (MOE) has launched a program called “Masterplan for IT in Education.” The program’s mission is to ensure that by 2015, 20% of schools’ curricula will be taught using technology applications such as e-books, GPS-enabled personal digital assistants and gaming technology. By 2015, Singapore aims to have 15
FutureSchools@Singapore where all lessons will be taught using such technology. Presently, Singapore has six FutureSchools, which are generously funded by MOE.

In line with the above goals, schools in Singapore have begun using gaming technology in classes. Students at the Yusof Ishak Secondary School are using the Nintendo Wii to learn to cook simple dishes in their Home Economics classes, while students at Singapore’s North Vista Primary School are practicing tennis strokes indoors via another Wii game.

Other gadgets are used outdoors as well. For example, the Tao Nan School enhances field trips and excursions by arming students with Global Positioning System (GPS)-enabled personal digital assistants that assign the children tasks as well as provide information regarding their surroundings.

**The Way Ahead : How Economies of Scale should not crowd out innovation and niche marketing**

Educational institutes need a common platform for instruction and sharing of ideas. Such platforms, usually comprising a series of software applications running on a common computer/OS/server backbone, may have been selected by schools via competitive tendering, or under a commercial partnership with certain technology vendors offering favorable terms.

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6 AsiaOne News Online, 20 per cent of school curriculum to use IT by 2015: Use of new media is in line with a masterplan by MOE, 5 March 2010
7 AsiaOne News Online, Wii, it's time for PE: North Vista Primary pupils pick up different sports with Nintendo Wii consoles, 19 October 2009
There is now tremendous enthusiasm for creating large-scale national platforms to raise technology standards in education while at the same time driving down unit costs through centralized government procurement. Students, teachers, and administrators are typically congregated in space (real or virtual), and further subdivided into segments (e.g. elementary, middle and tertiary) with common requirements. This relatively clear-cut segmentation makes it even easier for companies to develop products that can be leveraged across a large number of students.

This enthusiasm for grand ICT masterplans is reciprocated by companies, who perceive the intangible benefits to their products and brands from becoming entrenched in the education sector. The rise of educational investments in the emerging countries, home to the bulk of the world’s population and hungry for educational improvement at all levels, represents a market opportunity of gargantuan proportions.

However the education space is continually evolving, as is human knowledge and culture. It is clear that this evolution is slowly giving rise to a greater diversity of educational methods and philosophies as private education service providers proliferate to compete with public ones, and as governments start opening the door to greater internal competition among schools.

This evolution is making it impossible to visualize what the education sector will look like in 50 years time. However it does sound a cautionary note for ICT vendors – to ensure that their pursuit of grand, large-scale deals with governments does not blind them to the need to continually innovate.
and test new approaches with niche sub-segments within the Education sector.