

# Online and Blended Learning:

## Case Studies from K-12 Schools Around the World




Edited by:

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# **Online and Blended Learning:**

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# Table of Contents

*Foreword* xi

*About the Editors* xiii

*Acknowledgements* ix

**CHAPTER 1** \* Introduction, Methodology and Overview 11

## ■ Asian Countries

**CHAPTER 2** \* China 21

You Chenli, Transition Economic Research Foundation

**CHAPTER 3** \* Hong Kong 37

Nicole Idanna Alpert

**CHAPTER 4** \* India 61

Centre for Civil Society

**CHAPTER 5** \* Singapore 71

Preetam Rai, Associate Consultant, Quercus Pte Ltd.

## ■ European Countries

<b>CHAPTER 6</b> * Turkey	81
Nuray GEDIK, PhD, Department of Computer Education and Instructional Technologies, Akdeniz University	
Yuksel GOKTAS, PhD, Association for Liberal Thinking, Center for the Studies on Educational Policy	
<b>CHAPTER 7</b> * Finland	97
Petri Kajander, CEO, Credentum Ltd.	
<b>CHAPTER 8</b> * United Kingdom	105
Isha Kacker, Institute of Economic Affairs	

## ■ Oceania Countries

<b>CHAPTER 9</b> * Australia	115
Dr. Kevin Donnelly, Education Standards Institute	
<b>CHAPTER 10</b> * New Zealand	131
Derek Wenmoth, CORE Education	
<b>CHAPTER 11</b> * Conclusion	143
<b>APPENDIX A</b> * References by Chapter	149
<b>APPENDIX B</b> * Survey, Emails and Case Study Questions	159





## Foreword

*K-12 education is in the throes of a worldwide revolution. The goal is to better prepare students for the challenges of a world that is rapidly changing—economically, demographically and technologically. These changes have already forced widespread rethinking of traditional modes of education, which fall short in providing students with the quality and breadth of knowledge and competencies they need to function effectively in a global environment.*

*The heart of this revolution is online learning, described by the World Future Society as one of the top 10 breakthroughs that will transform life globally over the next 20 to 30 years. Online learning offers students endless opportunities to access world-class teachers—regardless of neighborhood or geography or family resources—and the education they will need to achieve success in an increasingly networked and knowledge-based society.*

*Indeed, this age of digital learning enables a true education revolution. The question is: which countries will succeed in innovating their educational system so that each student has access to the educational opportunities that will prepare them for a lifetime of success in this rapidly advancing, technologically-driven world?*

*While the opportunities are well documented, they are not always well understood by the educational communities or policymakers or media in the countries affected, where the need is often the greatest.*

*This volume seeks to provide an overview of the key issues, trends and progress of this dynamic educational revolution in e-learning, from the technologically advanced societies of Asia, Europe, and North America to the less developed world struggling to educate a still largely illiterate population. It may come as a surprise to many readers to learn of the huge strides countries such as China and Singapore have made toward advancing online and blended learning. The World Bank estimates that China may be the first country to succeed in educating most of its population through the Internet, reporting, "From 2003 to 2007, China spent about \$1 billion to implement online learning projects in the rural countryside."*

*The message, clearly, is that the United States and a number of other industrialized countries need to do much more to understand how to bring high-quality online learning to scale, and to do it sooner rather than later, to ensure that our students are not left behind and increasingly disadvantaged in the global marketplace. Online and blended learning has the potential to transform education and level the playing field for all societies, and we have the potential to provide a world-class education for each and every student.*

*Susan D. Patrick  
International Association for K-12 Online Learning*



## About the Editors

Michael Barbour is an Assistant Professor at Wayne State University in Detroit, Michigan, where he teaches Instructional Technology and Qualitative Research Methodology. Prior to this position, he completed his Ph.D. in Instructional Technology from the University of Georgia. Originally from Newfoundland and Labrador, Michael's interest in K-12 distance education began after accepting his first high school teaching position in a regional high school in a rural community of approximately 3,500 people. Having been educated in an urban area, Michael was troubled by the inequity of opportunity provided to his rural students and began a program to offer Advanced Placement™ (i.e., university-level) social studies courses over the Internet to students at his own school and other schools in the district. For more than a decade now, Michael has worked with numerous K-12 online learning programs in Canada, the United States New Zealand, and around the world as an online teacher, course developer, administrator, evaluator, and researcher. His current research interests focus on the effective design, delivery, and support of online learning to K-12 students in virtual school environments, particularly those in rural jurisdictions. Michael currently resides in Windsor, Ontario, Canada.

Lisa Hasler Waters is currently working on her Ph.D. in Educational Technology at the University of Hawaii (UH). Her research focus is on K-12 hybrid and blended learning models and the futures of education. She is an instructional designer currently practicing as an independent consultant for Inspired Curriculum, her own company, where she has been developing, implementing, evaluating and improving online curriculum for adult learners for more than 15 years. She has over 10 years teaching elementary, middle school and adult learners in the subjects of Spanish and digital technology. She serves on the Board of Governors for the Holbrook Primary School in England; is on the Board of Directors for Utopian Academics for Military Children (UAMC); and is on the Research Committee for the Association for Educational Communications and Technology (AECT) as well as the Research Committee for the International Association for K-12 Online Learning (iNACOL).

Jeffrey Hunt is an experienced technology practitioner in implementing technology in traditional classrooms as well as online classrooms. He has served as the director of e-learning and director of instructional technology for a large midwestern school district. Jeff has led initiatives to design, deliver, and evaluate online courses as well as the implementation of learning technologies in traditional classrooms. He has implemented learning management systems, library media systems, online grade books, and other district-wide systems. He has developed an online astronomy course online and routinely provides instructional design support to other teachers who are developing courses. Jeff was a classroom teacher and director of a school district planetarium. He continues to have a fascination for the sky and for space exploration. He uses astronomy education as a means to inspire children. Jeff's research interests involve online learning, visual literacy, gender issues in technology, technology leadership, technology planning, and technology evaluation. Hunt is a regular blogger at [jeffreylhunt.wordpress.com](http://jeffreylhunt.wordpress.com) and under the user name `jeff_hunt` on Twitter. Jeff is a founding board member of the Illinois Chief Technology Officers. He participates in leadership opportunities in the Consortium for School Networking and serves on the Illinois Virtual School Advisory Board. Hunt holds a doctorate in instructional technology from Northern Illinois University, master's degrees from North Central College and Michigan State University, and a bachelor's degree from Otterbein College.



## Acknowledgements

There are other people and groups that need to be thanked. First, the genesis for this topic began in 2006 when Susan Patrick and Allison Powell developed an international survey for several countries to learn more about their current policies and practices related to online learning in elementary and secondary schools. This survey helped provide a global perspective on the field of K-12 online learning. As they reviewed the results, they found many countries were dealing with the same issues and challenges, and spent the next few years trying to disseminate the stories of how countries were approaching the goals of providing a world class education for every student. This study of best practices was of interest to policymakers and practitioners alike.

Second, thanks goes to the extended project team of Rebecca Hoey, Kathryn Kennedy, Chantal Ounsworth, and Trina Trimm for their help with collecting and analyzing data, as well as providing leadership and direction in the development of the project.

Finally, perhaps the most important group are the researchers who engaged us in this work. They spent hours fine-tuning their chapters, providing changes based on our review, and then updating the chapters to include the most recent data. Thank you for your efforts.

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## CHAPTER

# 1

## Introduction

While there were over fifty responses to the most recent International Association for K–12 Online Learning (iNACOL) international survey in the recent report titled, *Online and Blended Learning: A Survey of Policy and Practice of K–12 Schools Around the World*, individuals and organizations from various countries were asked to provide a more detailed case studies of K–12 online and blended learning in their respective countries based on a series of questions or prompts concerning these areas: teacher professional development, online content, online courses, policy, and leadership.

Following is a discussion of the methodology to generate these case studies, an introduction and/or summary of each case study for nine countries.

# Methodology

The collection of the content for this volume was made possible through a grant provided to the Atlas Economic Research Foundation to replicate and extend the 2006 international survey conducted by the International Association for K-12 Online Learning (iNACOL). One of the extended items from the original study was a collection of case studies to further illustrate the K–12 online learning activities in a selected group of countries. Atlas initially distributed requests to 15 selected researchers in targeted countries where online initiatives were known to occur.

The researchers were provided with a questionnaire (see Appendix A) that was designed to help guide their reports. This questionnaire introduced the study to the researchers and indicated that their reports should:

- highlight international trends in the use of online and blended learning for government-funded primary and secondary education (i.e., ages 5–18 years);
- identify online learning initiatives and projects in the individual countries;
- promote international dialogue; and
- share the results.

As a variety of terms are used internationally to describe online learning — including distance education, virtual schools, virtual learning, e-learning, and electronic learning — iNACOL defined online learning as “education in which instruction and content are delivered primarily via the Internet.” In general, the common understanding is that this type of learning takes place over the Internet. For the purpose of these reports, blended learning was defined as “learning that combines two modes of instruction, online and face-to-face, but at potentially different points in time.” This term is often used synonymously with hybrid learning. Researchers were asked to focus their reports on students in the range of 5–18 years of age (i.e., primary and secondary education).

The reports were based on 23 research questions that were thematically focused around the following areas:

- government involvement in online learning in such areas as planning, finance, and leadership;
- numbers of students taking courses online and the geographic areas served;
- instructor professional development;
- quality standards for courses and supportive services;
- challenges for online learning; and
- technology used by students.

Researchers from eleven countries submitted reports, which we present as case studies in this volume. Unfortunately, one of these reports was excluded because of its focus on higher education, and a second was excluded because it was opinion-based as opposed to fact-based. The remaining nine case studies are presented in the following chapters. Below we provide a short introduction and summary of each of these case studies (presented in alphabetical order).

## Australia

The Australian education system is very similar to the American education system. Both are federal systems with a great deal of local control. Both are standards-based systems that have introduced for-profit corporations into the education system through charter schooling. However, there is little similarity in how online and blended learning are defined.

While the author of this case study used the terms online learning and blended learning, in almost all instances it was referring to technology integration. For example, in discussing the training of teachers to teach in an online learning environment, the author described the normal teacher certification process and how those programs usually include a course in how teachers can use e-learning and information and communications technology (ICT).

While not included in the case study, it should be noted that Australia has a long history of distance education at the K-12 level, which goes beyond technology integration. There are 15 different Schools of the Air that have been in operation for more than 50 years and several school systems that have used audiographics to deliver K-12 distance education. There are five K-12 online learning programs: Tasmanian eSchool (Tasmania), Grampians Virtual School (Victoria), Northern Beaches Christian School (Terrey Hills), Virtual School for the Gifted (Perth), and Virtual Schooling Service (Brisbane).

## China

A third of the people in China had access to the Internet in 2010. However, there are no official statistics on the number of schools that are connected to the Internet. Approximately 50% of all junior and senior high schools do have school websites, which is the only measure that can be provided at this stage.

The author of the China case study took a broad definition of online learning to include all aspects of technology-assisted learning. This means that when teachers instruct their students to use the Internet to search for information for a research project, visit a website to complete an activity, or use a blog to keep an online journal, these activities are all considered to be online learning. Essentially, activities that are generally referred to as technology integration in North America were included under the umbrella of online learning.

There are several nonprofit, and even for-profit, ventures that have created websites to provide these kinds of online resources. Resources, similar to Thinkfinity but ranging in quality from those created by teachers with very little technical training to those created through corporate development, support the integration activities of teachers and facilitate student access to a wide range of learning objects.

Using a North American understanding of online learning, the main examples of online learning appeared to focus on the use of for-profit online tutoring. In China, like many other Asian nations, the nature of the schools that a student attends—from elementary to high school to university—is based upon the student’s performance on standardized examination. Due to the high-stakes nature of these exams, many parents invest in tutoring for their children. For-profit companies that provide online tutoring services appear to be the closest example to K-12 online learning in China, based upon this case study.

## Finland

In Finland, online learning is included in the government’s national plan to develop educational technology, but its implementation is mainly at the local level and with the teachers. There are no governmental licensing requirements or special credentials required to teach online. It is considered a teaching method and source of content the same as any other, with no special standing in evaluation, quality assurance, procurement, or otherwise.

The online learning content comes from commercial providers and public initiatives but is created mostly by the teachers themselves. All teachers in Finland have at least a master’s degree, giving them a good foundation to create and develop their own course material independently. The large educational publishers have their own online content materials, but they are mainly focused on supporting the existing book sales.

In higher education, the Finnish Virtual University (FVU) is a partnership of all 21 Finnish universities. It develops and supports collaboration among universities in the utilization of educational technology. As a consortium, it develops information, network-based training, and educational services for the shared use of its member universities. The government-funded the project and it has generated tangible results, such as developing 460 online courses in 2001–2002 according to the Ministry of Education. The FVU partnership ended in 2010; however, all 21 universities continue to do business individually.

While not discussed in the case study, Finland does have a single national virtual school that has been in operation for some time now.

# Hong Kong

Hong Kong is a country in transition; the change in stewardship has resulted in a new focus in language instruction. Many of its universities attempted to create virtual learning spaces prior to 1998. In 1994, The Chinese University of Hong Kong established the Hong Kong Education Information Network, which was later renamed Hong Kong School Net, a rarely used service that provided local dial-up services (e.g., email, ftp) for teachers. After the School Net, another dial-up-based service called Hong Kong Cyber Campus was promoted and supported by government funding, and in 2000, the Hong Kong Cyber Campus became the Hong Kong Education City (HKEdCity).

Like other countries, personal technology improvements outpace the improvements in school-based technology. Spurred by new policies, educational technologies have been widely implemented in schools in the past decade. The policies include strategies for the implementation of educational technologies in schools, as well as digital content with student participation a key element. One policy has a goal to foster students' attitude and ability for life-long learning. The policy listed four areas of focus: access and connectivity, teacher enablement, curriculum and resource support, and community-wide culture. There is also the need for a paradigm shift from a textbook-based and teacher-centered mode to a more interactive and learner- or user-centered mode in order to adapt to a new era.

Hong Kong Education City (HKEdCity, a nonprofit subsidiary of the government) was given the responsibility of promoting online learning resources and to play the role of a market facilitator. This organization is free for teachers to use and contains an online question bank, learning objects, and modules, along with a self-evaluation platform for teachers to measure their technology use in the classroom. In 2009, there were over 200,000 teacher participants. In order for students to use HKEdCity, their teachers must sign them up for the program. An HKEdCity poll, completed in December 2010, sampled teachers' attitudes toward online learning and reported that teachers felt positive about online learning, performed searches for online sources regularly, and were receptive to online source implementation.

In 2010, a Hong Kong policy recommendation stated that digital learning must include the implementation of debundling textbooks and teaching materials for pricing and launching of the pilot scheme on e-learning in schools, as well as the acceleration of the development of the online repository of curriculum-based learning and teaching resources, with a view to enhancing students' effectiveness in learning. This resulted in a program to enable all 410,000 primary and secondary students in 300,000 low-income families—especially the 8% without Internet access at home—to gain access to the Internet for the purpose of learning. The Working Group on Textbooks and e-Learning Resources Development recommended a three-year pilot scheme on “Promoting e-Learning” to launch in 20 to 30 local schools in the 2010–2011 school year and to give more resources to HKEdCity's Depository of Curriculum-Based Learning and Teaching Resources. More resources in the form of a one-time grant are given to all local schools, amounting to some \$30,000 to \$70,000 per school, for purchasing e-learning resources for students and teaching materials, as required over a three-year period.



In 2002, following the SARS outbreak, the schools were forced to close down. Despite the challenges of actual implementation, online systems were able to help facilitate school plans for communicating with students, parents, teachers, and the community, as some schools closed down at critical times, such as during exams. In 2008, H1N1 (Avian/Swine Flu) hit Hong Kong; however, online learning enabled schooling to continue and 560,000 of all Hong Kong students to study at home. Yet, after what seemed like a seismic shift toward online education from both of these pandemics, schools resumed their traditional teacher-centric modes when students returned to classrooms.

## India

There are major challenges to education in India. Illiteracy rates average around 32%, and students spend only 4.4 years in public schools, resulting in only 50% of students attending school after their primary years. Education facilities are rated as “poor,” and teacher absences appear high, with nearly 25% of teachers absent on any given day. Students cannot learn in teacher-centric schools when teachers are not present, which may be causing the move of enrollment away from the government-operated schools that serve 70% of the nation’s children. At the rural level across the country, private school enrollment increased from 16.3% in 2005 to approximately 22.6% in 2008—an increase of about 40%. It is safe to assume that there is an even more significant private school enrollment over government schools in urban India.

The online market appears to be small, as online education courses are predominantly supplemental in nature and are not offered under the prescribed academic curricula in the country. Yet, there is an increasing demand for supplementary classes, as evidenced by the fact that 31% of the eighth grade students in government schools and 22% in private schools, who paid for additional tuition. Because a student may take more time grasping the concepts of one subject over others and may require additional lessons, it is believed that this supplemental education increases the learning outcomes of students.

Because the government has no formal online programs, standards for quality, or acceptance of course credit, there are no regulations, standards, or certifications for online education. Therefore, the private sector is developing its own standards and practices. The school curriculum acts as a framework for the content, and the quality of the content is determined primarily on the basis of the client requirements. In online courses, students can move at their pace through the content. However, interaction between the students and between the student and the teacher is limited to the time the course is being conducted online. As an example, one company provides the feature where students can interact with one another as long as they are in a virtual classroom. A second company’s courses are conducted in a classroom in the presence of a teacher and other students, so there is greater student-teacher interaction, but students are not able to move at their own pace. Professional development for online teachers is also provided by the private companies.

## New Zealand

Given the geography and population distribution of New Zealand, distance education has been utilized for K-12 education. Beginning with a print-based medium, over time the Correspondence School has become so entrenched as an accepted delivery medium, it is now codified in legislation.

The transition to the online medium began with the Canterbury Area Schools Association Technology (CASATech) initiative over twenty-five years ago. Similar to many North American jurisdictions, K-12 online learning initially focused on rural schools serving all grades from Year 1 to Year 13. In fact, many of the early K-12 online learning initiatives had a rural focus (e.g., OtagoNet and FarNet).

It was from these early initiatives that the Virtual Learning Network was developed. Essentially, the Ministry of Education provides hardware and software resources—such as access to a learning management system and support for a video conferencing bridge system—while the individual e-learning clusters provide K-12 online learning opportunities, professional development initiatives, and other technology-based projects.

At present, there are approximately a dozen active e-learning clusters. There are also another half-dozen clusters that are just beginning to emerge, most of which are based in urban areas. Additionally, the Correspondence School has begun the process of transitioning some of their courses to an online delivery format.

## Singapore

Within the island nation of Singapore, online learning is used to support the classroom; however, it is not used to support learning from a distance. Their main purpose for online and blended learning is to prepare students for a collaborative and technologically savvy society.

The majority of younger students (i.e., 7- to 14-year-olds) use the Internet for educational purposes. Educational technology officers who are employed by the Ministry of Education support clusters of schools in their use of technology for learning. Schools also have ICT personnel to help teachers and students with technology and technology training.

Blended learning, rather than purely virtual classes, is the norm. Teachers conduct learning activities using online tools. Online teaching skills are required as part of the professional development program for educators. Courses are provided by the National Institute of Education or professional development organizations. However, there is no prescribed set of qualifications or training that a teacher must engage in to teach online.

The online content quality assurance program consists of a self-assessment tool referred to as the “Benchmarking Your IT Practices for Excellence in Schools.” Additionally, the Ministry of Education has baseline ICT standards that schools can refer to for their online learning

initiatives. There are also technical guidelines for distributing online learning, which are set by the Information and Technology Standards Committee of the Singapore Standards Council.

## Turkey

At present, online learning is still largely focused at the post-secondary or higher-education level in Turkey. While there are extensive and longstanding K-12 distance education programs, the use of K-12 online learning is still limited due to access and infrastructure issues. The K-12 distance education programs that are currently operating have a focus on underserved populations, particularly students in rural areas.

The main K-12 distance education programs are operated as open schools, modeled after other open education institutions throughout Europe (such as the Open University in the United Kingdom). Historically, this has meant a print-based delivery of K-12 distance education. However, there has been a recent transition to digitize the content. At present, that digitization has focused on the creation of video and audio files, converting print material to PDFs, and online multiple-choice testing, which has resulted in a digital curriculum that is largely an online version of the former correspondence materials.

One of the reasons for the historic focus on print-based materials, and even the creation of low-bandwidth online materials, is due to the fact that Internet access outside of the urban areas is still quite low. Even within urban areas, most students appear to access the Internet at school, in libraries, or through Internet cafés.

Beyond the K-12 distance education initiatives, as in many European countries, the national government in Turkey has embarked on a number of technology integration initiatives—many which include or focus on Web-based curricular materials and activities. The primary purpose of these initiatives is for classroom use, although it is possible that they could be used in distance education initiatives.

## United Kingdom

In the United Kingdom, spending constraints and budget cuts have eliminated much of the funding that supported the government department that ensured the use of technology in learning, the qualifications and curriculum development agency, and the national curriculum website. These cuts were seen as a way to decentralize control over learning and technology and give that control back to the local schools.

There is no government organization that oversees quality standards for online teaching or online courses. Additionally, there is no governmental master strategic plan for online learning on a national scale. However, the Ministry of Education and the Infocomm Development Authority shape the direction of online learning to set a strategic mission. Currently, the government provides funds to local authorities so that they allocate funds for

online curriculum, hardware, and software based on their local needs. They usually purchase services and products from private vendors.

The majority of students have access to online resources, and there is a fairly high ratio of students to computers in the schools. Most of the efforts to use technology for learning occur at the secondary level. There is, however, good support for assistive technologies in schools.

Of the online learning that does exist, it is most often used to support courses for medically homebound students, students with special scheduling considerations, students for whom work is a priority, and students with special needs. There are no government licensing requirements for teachers who teach online, except that they must be qualified to teach. Furthermore, there is no extra training provided to teachers for teaching online. Yet, teachers typically create the content for online courses and a learning management system is used to deliver courses.

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We invite you to investigate the case studies from the countries that interest you. Perhaps one of the countries is your neighbor or a country that is frequently used by your nation to benchmark achievements and aspirations. Indeed, investigating all of these studies will help you understand the complex nature of online learning across the globe. It is certainly a challenge that is facing all nations, and we invite you to examine each of the case studies for lessons that may be applicable to your individual context.

# Asian Countries





## CHAPTER

# 2

## The Growth and Development of Online Education in China's Public Education System

**You Chenli, Transition Economic Research Foundation**

This report discusses online education in China, with a focus on primary and secondary education. The discussion involves two parts: independent websites serving the primary and secondary education market, along with supplementary educational platforms, and the construction of for-profit business organizations targeting the online education market. This report will cover the above two topics, including website construction and operation, teaching experience, content, scope, quality, and finally government policies relating to the online education market.

### China's Elementary Education System

China currently administers pre-school, primary and middle school, and university education levels of education. Chinese educational authorities state that the educational system is founded on scientific principles. The creation, form, enrollment, and training targets for all government schools are controlled by the State Council and the Ministry of Education.

According to the relevant regulations, China mandates nine years of compulsory schooling (i.e., six years of elementary and three years of high school). All levels of government must adopt policies to ensure that students fulfill these requirements. In addition, parents or other legal guardians, as well as social organizations, have an obligation to ensure that children and adolescents complete the required number of years of compulsory education.

	Schools	Teachers	Students (10,000)	Female Ratio
<b>Primary School</b>	280,184	5,633,447	10,071.5	46.3%
<b>Middle School</b>	56,167	3,513,438	5,433.6	47.3%
<b>High School</b>	14,607	1,493,313	2,434.3	48.2%
<b>Total</b>	350,598	10,640,198	17,939.4	

**Table 2-1: China's Current Educational System (as of 2009)**

Source: National Bureau of Statistics of China: <http://www.stats.gov.cn/tjsj/nds/>  
Laws, Regulations, and Policies Relating to Primary School Online Education

## Legal Requirements

To this day, the Chinese government has not released specific regulations and guidelines pertaining to online education. However, the government has promulgated a large number of laws and regulations that touch upon education, the Internet, and business operations, all of which influence the online education environment. Table 2 lists these policies.

Area of Legislation	Law and Administrative Regulations	Date of Implementation
<b>Education</b>	Teachers Law of the People's Republic of China (PRC)	1/1/1994
	Education Law of the PRC	9/1/1995
	Compulsory Education Law of the PRC	9/1/2006
<b>Internet</b>	Regulation on Telecommunications of the PRC	9/25/2000
	Regulation on Internet Information Service of the PRC	9/25/2000
	Interim Provisions on the Administration of Internet Culture	7/1/2003
	Measures for the Administration of Internet Domain Names of the PRC	12/20/2004
	Measures for the Archival Administration of Non-operational Internet Information Services	3/20/2005
	Administrative Provisions on Internet Audio-Visual Program Service	1/31/2008
<b>Private Companies</b>	Contract Law of the PRC	10/1/1999
	Provisions on the Administration of Registration of the Business Scope of Enterprises	7/01/2004

**Table 2-2: Legal Regulations Relating to Online Education**

Source: <http://www.gov.cn/flfg>

## Related Policies

Beginning in the 1990s, the personal computer and Internet markets began to develop at a rapid speed in China. Owing to the ease of use and significant potential cost savings, educators and government policymakers enacted a number of policies to encourage and promote the adoption of online education platforms in public schooling (see Table 3). Although nominally opposed to market forces in the economic sphere, Chinese government policies began to promote the development of the online education industry, thus confirming that the government recognized the social importance of the Internet. The development of the online education industry in China relies mainly on the continuing expansion of the market and free competition. For China's public education sector and the development of the Internet in general, the most important reform measure will be the continuing liberalization of state administrative control.

Policy Name	Implementation Date
Suggestion on enhancing computer education in primary and middle schools	7/24/1992
Guideline for teachers' computer training courses in primary and middle schools	10/7/1994
Guideline for computer courses in primary and middle schools	12/23/1994
Five-year-plan for computer education in primary and middle schools	1996
1996-2000 plan for educational software in primary and middle school	19/6/1996
Education promotion act plan toward 21 century	11/13/1999
Guideline for information technology courses in primary and middle schools	2/11/2000
Decision on the reform and development of primary education	6/14/2001

**Table 2-3: Policies Related to the Encouragement and Growth of IT in Public Education**

Source: <http://fagui.eol.cn/>

## The Beginnings and Development of Online Education in China

### The Spread of the Internet in China

According to a December 30, 2010, news report, the State Council Information Office held a press conference, during which Wang Chen (Director of the CPC Central Committee Foreign Propaganda Office and the State Council Information Office) stated that as of 2010, the total number of Internet users in China had reached 450 million, for an the annual growth rate of 20.3% between 1994 and 2010. China had thus become the world's largest Internet market, as measured by the number of users. China's Internet penetration rate had reached 33.9%.



## Development of Online Education in Primary and Secondary Schooling

Along with the increasing popularity of personal computers and the Internet, the use of online education in China's network of primary and secondary schools continued to grow. This development is reflected in the increase of computers and computer classrooms, as well as the construction of campus networks. Table 4 shows the specific figures.

	PC Room	Number of Computers Used for Instruction	Electronic Books and Magazines in Libraries	Campus Networks Installations
<b>Primary</b>	10,242,478	3,849,568	15,444,150	
<b>Elementary</b>	7,591,911	3,165,142	8,878,479	24,274
<b>High School</b>	5,829,702	2,534,418	11,467,596	10,812
<b>Total</b>	23,664,091	9,549,128	35,790,225	35,086

**Table 2-4: Growth of the Internet in Chinese Classrooms**

Source: Ministry of Education website. Statistics as of December, 2010

With this development as a background, many schools have set up their own campus networks to achieve the following goals: orientation, campus news, digital bulletin boards, information regarding school events, student-teacher exchanges, and access to study materials; the specific content of these goals will be discussed below. Listed in Table 5 are some of the more well-known Chinese primary and secondary school online education websites.

	School Name	Website
<b>Primary School</b>	Affiliated experimental primary school of Beijing normal university	<a href="http://www.eps.bnu.edu.cn/">http://www.eps.bnu.edu.cn/</a>
	Tianjin Heping district Wanquandao primary school	<a href="http://wq1901.hpjy.edu.cn/">http://wq1901.hpjy.edu.cn/</a>
	Shanghai primary school	<a href="http://shxx.xhedu.sh.cn/">http://shxx.xhedu.sh.cn/</a>
	Chongqing Bashu primary school	<a href="http://www.cqcdbs.com/">http://www.cqcdbs.com/</a>
	Hangzhou Shengli primary school	<a href="http://www.shengli.net.cn/index.asp">http://www.shengli.net.cn/index.asp</a>
<b>Middle School</b>	The Beijing fourth middle school	<a href="http://www.bhsf.cn/">http://www.bhsf.cn/</a>
	Affiliated foreign language school of Tianjin foreign language college	<a href="http://www.tjfls.cn/">http://www.tjfls.cn/</a>
	Affiliated middle school of Nanjing normal university	<a href="http://58.213.145.148/Press/Default.aspx">http://58.213.145.148/Press/Default.aspx</a>
	The first affiliated middle school of Huazhong normal university	<a href="http://www.hzsydz.com.cn/">http://www.hzsydz.com.cn/</a>
	Hubei Huanggang middle school	<a href="http://www.hbshgzs.com/">http://www.hbshgzs.com/</a>
	Chongqing Nankai middle school	<a href="http://www.cqnk.cq.cn/">http://www.cqnk.cq.cn/</a>

**Table 2-5: Well-known Primary and Secondary School Websites in China**

## The Construction of Educational Resources Websites

The concept of “online education” first began to spread in popularity beginning in the 1990s. The first distance education website was a for-profit commercial website named “101 Distance Education Network,” which began operation in 1996. During this same period, the national government adopted a slate of policies relating to online education, all of which aimed at encouraging and strengthening the online network of primary and secondary education in urban and rural areas. In this context, a series of public education goals as they related to basic online education were constructed (see Table 6).

Web Name	Website
China basic education web	<a href="http://www.cbe21.com/">http://www.cbe21.com/</a>
Primary and middle school teachers’ web	<a href="http://www.bjtde.net.cn/index.html">http://www.bjtde.net.cn/index.html</a>
K12 China primary and middle school education web	<a href="http://www.k12.com.cn/">http://www.k12.com.cn/</a>
National basic education source web	<a href="http://www.cbern.gov.cn/">http://www.cbern.gov.cn/</a>
People’s education web	<a href="http://www.pep.com.cn/">http://www.pep.com.cn/</a>
China primary and middle schools’ digital library	<a href="http://www.cfed.cnki.net/cfed/index.html">http://www.cfed.cnki.net/cfed/index.html</a>

**Table 2-6: Educational Resource Websites in China**

## The Rapid Development of Commercial Primary and Secondary Online Education Websites

China’s public education system is still based primarily on exam-oriented achievements. Examinations and other tests are the primary means by which students are promoted to high school and university, as well as the primary means by which individuals can secure gainful employment. As a result, the expectation of a high test result has become the only practical goal for most students, as well as the only expectation for most parents and members of society. Thus, at school and at home, the focus for students and parents has been on training children how to improve their test scores. While attending class, students focus on tests; while out of class, they participate in a variety of remedial classes to gain a competitive advantage.

With this serving as a background, the development and popularization of online tutoring and training tools has become the dominant method for education. Many traditional counseling agencies and new educational institutions are targeting this market by providing online learning materials. The number of these institutions has increased rapidly in recent years in China, including the creation of a number of now well-known brands. A detailed discussion of the operation of such companies and institutions can be found below.

Organization Name	Website
101 far distance education web	<a href="http://www.chinaedu.com/">http://www.chinaedu.com/</a>
Yinhe education web	<a href="http://www.inheedu.com/">http://www.inheedu.com/</a>
Xueersi online school	<a href="http://www.xueersi.com/">http://www.xueersi.com/</a>
The online school of Beijing fourth middle school	<a href="http://www.etiantian.com/">http://www.etiantian.com/</a>
The online school of Huanggang middle school	<a href="http://www.huanggao.net/newweb/">http://www.huanggao.net/newweb/</a>
Heilongjiang parents online school	<a href="http://xxt.hl.chinamobile.com/">http://xxt.hl.chinamobile.com/</a>

**Table 2-7: China's leading online education institution web site (primary and secondary education)**

## The Primary Shape and Content of Online Education in Elementary and High School Education

As mentioned above, there are three main types of online educational websites serving elementary and high school students, parents, and educators. They are nonprofit websites established independently by schools, for-profit and non-profit websites created under the auspices of government and government-related departments, corporate for-profit websites that provide counseling and training for students.

### Elementary and High School Websites

As was shown in Table 1 above, although specific details on the number of websites established by primary schools in China have not been reported, the number of junior high and high school online campuses reached 35,086 by 2010, accounting for roughly 50% of all online campuses in the country.

The primary aim of these websites is for dissemination of school-related information (self-promotion), information communication, and the provision of educational resources. Again, these websites are run on a not-for-profit basis.

### Self-promotion

These types of websites were created mainly for the purpose of promoting school activities, news, and achievements, publishing enrollment procedures, and issuing information for recent graduates. For example, a school overview describes the school's history, status, area, buildings, fixed assets, and number of teachers and students; school news relates past and present major events, media coverage, and other school-related information; promoting the achievements and awards won by the school, students, and teachers also includes the proficiency level of its teachers and students; enrollment information presents announcements and presentations on future school enrollment and admission standards, programs to facilitate the registration and examination of students; and material for graduates of the school focuses on life after graduation, including tips for finding jobs, and the achievements of outstanding graduates.

## Information Communication

These websites include information on institutional construction, scheduling, and campus activities. They include implementation of institutional provisions, appointment and removal of personnel, reward and punishment guidelines, and a schedule of the school semester, including a schedule for each month, week, and day, along with organizational activities and times.

## Educational Resources

These websites include learning resources, course materials, online libraries, and student-teacher interaction platforms, as well as tools for those learning from home. These include learning resources, including materials relevant to in-classroom discussions, tutoring materials, exercise, and supplementary materials; course material that is mainly related to learning and classroom learning materials, which allows students to find information to do preparation and review work; online libraries that provide students with information on how to use campus library facilities, search online for materials contained in school libraries, and write book reviews, as well as access and download electronic books; teacher-student interaction platforms that provide off-campus students with opportunities to ask questions of teachers and engage in online discussions; home-school interaction that provides parents opportunities for discussions with teachers in order to better facilitate the learning process from home and ensure that parents who are unable to physically travel to the school are able to gain feedback regarding their child or children.

In addition, many campus websites also set up special classes and community pages for the purpose of communication between teachers and students. Many communities have set up special classes, blogs, and pages for photos in an attempt to record school life.

Overall, these types of websites in Mainland China still concentrate on two fronts: publicity and the communication of information. The main purpose in creating these websites is to promote these schools to the outside world, use the Internet to inform others about school activities, and provide basic educational resources for students to download and use online. However, the provision of online resources is currently far from ideal. In general, these schools provide only some basic online course-related software and exercises, and updates are relatively slow to occur. In many cases, a full year can pass without any new updates.

On the other hand, the slow pace of development on this front can be explained by the lack of interest by students, parents, and teachers. For example, many of the forums on school websites that exist for student-teacher interaction, as well as teacher-parent interaction, only receive one to two visits per day. The reason for this owes mainly to students and teachers having ample opportunity to meet face to face, as well as teachers and parents lacking enthusiasm to continue using the Internet after work hours. The interaction between parents and teachers has not reached a developed stage primarily because many parents are unfamiliar with the tools that have been made available on the Internet. Thus, the use of this technology is still relatively small.

## Basic Educational Resource Websites

The vast majority of basic educational resource websites currently offered in China rely on investment from the government or on partial government assistance. Some of these sites are constructed directly by government departments or agencies, while others are created by private enterprises. Thus, some sites are for-profit, while others are nonprofit in nature. These resource websites provide basic elements such as important education industry information, basic course materials, online courses, and interactive platforms.

### Important Education Industry Information

Such websites are typically quite comprehensive and often include the following contents: primary and secondary school education policies and interpretations; lists of new and existing schools; campus information on personnel changes; education departments, schools, and teachers recruitment and job search information; school enrollment and graduation information; subscription information on a variety of magazines and journals; information on regional changes in teaching resources; varied examination-related information; exchange of information related to teaching; industry events and information on awards and scholarships; national and regional education teaching seminar information; and national and regional learning contests and other extracurricular activities and awards information.

### Basic Course Materials

Course materials websites typically sort information and data based upon grade classification, with some subjects classified according to the different regions of China. This is because currently in China, different regions have different requirements, and thus material can differ from region to region. Others are classified according to the type of information (such as classroom supplement, tutoring, exercises, relevant background information, reading, learning software, experimental simulation, etc.). Such information is often the core of this type of website.

### Online Courses

There is a striking difference between websites in this category. Nonprofit websites providing course material feature mostly award-winning videos, allowing teachers to learn advanced teaching methods. Most online courses for students aim toward expanding extracurricular knowledge, as well as videos promoting the study of science. The for-profit websites are obviously aiming to increase sales, and as a result, they provide a comprehensive catalog of online course content. They aim to attract students, parents, and teachers by offering a wealth of course materials. By paying a fee to access their content, students and parents can make use of online courses and test preparation materials, as well as other materials that are geared toward supplementing students' current course material.

### Interactive Platforms

As with the abovementioned online course websites, the same difference between for-profit and nonprofit websites exists in the category of interactive platforms. Many ignore

the interactive platforms offered by nonprofit websites, and they are thus quite similar to websites offered by schools. The websites created by for-profits are the main focus of parents, students, and educators; they offer an interactive forum for users, especially for students who encounter problems during their study, as many of these for-profit websites employ teachers to provide quick answers and feedback to student enquiries. Additionally, interactive sessions help facilitate communication between parents and teachers on the websites, which helps to further cement a relationship between the company and the consumer.

Overall, websites offering basic educational materials offer a significant benefit to China's educational system. As such, many are funded by the government or exist owing to government assistance. Of course, there exist today many for-profit educational websites that offer a wide variety of resources and interactive platforms. For the educational industry resource and basic educational resource websites, there does exist a degree of similarity, and as a result, there is an obvious difference between them and the school-produced websites. However, when discussing the interactive platforms for online course delivery and construction of nonprofit websites, these have more in common with specific school websites and less with the third type of website: commercial websites.

## Commercial Educational Websites

These websites are typically managed by for-profit, private firms and other companies. Their customers are typically on-campus students, and they act as course tutors, allowing students to improve their on-campus academic performance. Owing to competitive pressure, such sites often have expansive amounts of content and information and an excellent quality of service. Also, because of their convenience and price advantage, these online tutoring classes have become an important alternative to traditional on-site tutoring in recent years.

An analysis of these websites shows that they include the following content: business marketing, synchronized learning, after-school Q&A, online exams, and parents' classrooms.

### Business Marketing

For-profit websites place a great deal of emphasis on marketing the content; and the type of marketing can be divided into two areas. The first is marketing to investors and potential franchisees. Such sites attract investment by bringing together franchisees by advertising the potency of their brand in China. Franchisees, on the other hand, are primarily concerned with expanding the website's brand presence, communication with customers, and fee collection in order to earn shared revenue. As a result, these websites have sections containing information for investors, the history of the website, and franchising opportunities.

The other aspect of business marketing is promotion directly to website users: students and parents. These websites have sections pertaining to honors and awards, introductions to different campuses around China, website and course descriptions, curriculum and fees, and terms of contract.

## Synchronized Learning

These websites offer a complete set of online tutoring, including what is known as “synchronized learning.” The materials used for synchronized learning are based upon teaching materials and grade level, and students have the ability to watch videos online and interact with teachers hired specifically by the websites. Students who have subscribed to these websites are able to download and stream teaching materials once they have logged in. A major benefit of these websites is that they offer teaching videos that include top-tier teachers, as opposed to classroom learning, which often rely on teachers of second-rate quality. Also, students and parents can utilize the materials at any time, meaning that subjects possessing a greater degree of difficulty can be reviewed in greater depth.

## After-School Q&A

All of the websites in this category have Q&A sections. Companies hire outstanding teachers from around the country who are available 24 hours a day to answer students’ questions. Compared with other categories of websites, this interactive Q&A function is often one of the distinguishing characteristics. The quality of this function is considered to be quite high, and as a result, Web traffic is also quite high. Teachers employed to respond to student questions are often considered to be experts in their respective field. In addition to teacher quality, another benefit of the online Q&A function is that it provides a platform for asking questions for students who are shy or otherwise uncomfortable in classroom settings.

## Online Exams

Aside from online review and Q&A, these websites offer self-examinations, which allow students to measure their ability and identify their weaknesses.

## Parents’ Classroom

Such websites also place a special emphasis on communication with parents. On the one hand, they provide many different types of learning materials for parents, mainly aimed at helping to train parents how to educate their children. However, they also provide a platform for parents to communicate with other parents. In addition, these websites give parents the opportunity to ask questions and view answers to issues raised by other parents. It is worth mentioning that many sites have set up specific sections for counseling to both parents and students.

# Investment in Primary and Secondary Online Education Websites

Depending on the type of website, the following three categories of sites will offer specific targeted instructions for investors, teachers, and users.

## Primary and Middle School Campus Websites

Primary and middle school websites are often limited in features, and the frequency of use is thus not high. As a result, the information provided below is relatively brief.

### Investors

The cost of building these types of websites is modest given their limited functionality, and thus daily maintenance is simple and requires little to no labor. Such sites see little outside investment, as they are primarily the product of in-school investment.

### Teachers

Such sites generally offer few video courses and are primarily platforms for the release of school-related information, with online Q&A features being a mere formality. Therefore, teachers are not utilized.

### Users

Users of such sites are both teachers and students, and the use of these websites is typically free. Campus websites are mainly for teachers and students to gain access to school news and information, with only a small amount of educational resources available for download.

## Educational Resource Websites

The most salient feature of these websites is the provision of education industry information and basic teaching resources. In addition, these sites can again be divided into the categories of for-profit and nonprofit, which results in differing online courses and interactive platforms.

### Investors

Investors in these websites can be divided into two categories. The first is government investment, and here “government” generally refers to all levels of governmental education and finance departments. For such websites, money is generally allocated to the relevant government department(s) or institutions, and these entities in turn provide the actual construction and maintenance work, as well as informational updates. Such sites are often nonprofit and are designed to provide resources and information sharing for the public at large.



The other category includes for-profit websites created by private firms. Given the general support of the government for online education, such companies are often able to obtain tax breaks and free promotion.

## Teachers

It is rare for nonprofit websites to offer instructional videos, and we have found that they often offer only a cursory number of experimental teaching classes; thus the number of teachers interacting with these websites is quite small. The video lectures offered by for-profit websites and the concept of “network learning websites” will be discussed below, but as mentioned previously, their quality is deemed to be much higher than in the nonprofit websites.

## Users

Aside from the students who use nonprofit websites, teachers are the main users. Students access these websites primarily to download and interact with educational materials, while teachers use the websites in order to better prepare for their classes and learn new pedagogical techniques. In addition, they can use the sites to advertise and search for teaching positions, solicit articles, provide information on upcoming conferences, and access academic research.

The profitability of these websites depends primarily on student Web traffic. In addition to downloading and the use of a limited amount of learning resources online, students can purchase services through the websites, including pretaped lectures, sample test questions, and practice tests. The specific content will be discussed below.

## Commercial Learning Websites

### Investors

Investors in these websites are primarily for-profit companies, and individual investors more often than not come from an educational, Internet, or marketing background. Given the explosive growth in the online primary and secondary education market, investment in educational websites has been identified as a low cost and relatively secure way to find solid returns on investments.

### Teachers

Such sites provide a large amount of video lectures and other related educational videos, and thus the demand for teachers is quite high. These teachers are typically considered leaders in their respective field and have a great deal of actual teaching experience. Therefore, these sites employ teachers on a part-time or project-by-project basis to create video lectures. In the field of elementary and primary school online education, there are very few freelance teachers, and thus to ensure the quality of the videos, most are filmed at actual schools, with the website companies selecting from the best teachers and schools in the country. Given that the government holds a near-monopoly over educational resources, many companies feel it is safer to employ teachers who are currently employed

in government schools, thus providing a degree of quality assurance to consumers who fear that the private market is replete with scam companies.

### Users

Users of such sites are primarily students and their parents. In order to improve students' competitive advantage during exams, parents utilize these online course offerings. Compared with traditional school tutoring classes, students find using online platforms to be more convenient for obvious reasons. In addition, users can return to the online materials as often as they like, which is an obvious advantage for students who learn at a slower pace than the rest of their classmates.

## Primary and Secondary Online Education Quality Assurance

### Primary and Secondary School Websites

Given that these websites are used primarily for publishing intraschool information (e.g., events, announcements, etc.), there is no large need to have quality assurance policies in place. School administrators have a built-in incentive to ensure accuracy and quality.

### Educational Resource Websites

The public information released on these websites is typically supervised and authorized by governmental education authorities, especially industry information. Also, information promulgated on these websites more often than not comes from government-authorized institutions, and as such is considered to be reliable and timely.

### Commercial Educational Websites

As mainland China currently lacks legislation relevant to primary and secondary school online education, there are no regulatory bodies to ensure the quality of either website content or teachers. However, market competition has done much to safeguard consumers from accessing fraudulent websites and other related materials of substandard quality. Websites that offer poor quality or service, contents or instruction will find their long-term consumer base wither away. Given the rapid speed that information flows in the modern era, companies that don't meet customer requirements will struggle to survive and profit.

Therefore, the profitability of websites depends greatly on internal monitoring, and most websites have a specific team that is tasked with reviewing content, ensuring timeliness, and responding to consumer complaints. When it comes to the choice of instructors, in order to maintain their own competitiveness, websites will often hire the best teachers in a given field, which in itself may not be a total guarantee of quality, but it goes a long way toward minimizing risk.

Of course, the ability of these teachers has been proven through the formal education system and the recognition of their peers. And although no specific agency exists to monitor and evaluate quality, evaluation comes primarily through the market process, which is often the most objective measure of a website's worth.

# The Strengths and Weaknesses of Online Education in Elementary and Secondary Education

## Elementary and Secondary School Websites

As mentioned above, websites in this category are primarily vehicles for the transmission of school-related information, announcements, and some basic educational resources. Because they are the product of the schools themselves, they rely primarily upon teachers and students for Web traffic, and if they are to develop in the future, the most likely direction is that of providing a platform for student-teacher communication.

Of course, because of the limitations on website functions and user interaction, it is likely that there will be no further development of these websites, and they will be confined to their existing scope and size.

## Educational Resource Websites

The advantage of these websites is their ability to offer public information and authorized resources. The information they provide, being public in nature, is often of great assistance to students, parents, and teachers, and as a result, Web traffic is relatively high compared to the school-run websites. Therefore, these sites have more room for future development, albeit development that is likely to rely on government assistance, given the difficulty in monetizing their contents and services.

Of course, the information these websites provide is still largely confined to areas related to classroom teaching, and the overall benefit to students is probably not very great. This is largely due to China's current education environment: the government monopoly over primary education and the emphasis placed on test-taking as a means of education and professional development. If website content is not specifically of value to students preparing to take exams, it is deemed to be of little or no value. In this case, those looking to enter this market must place a special emphasis on producing materials and products that are relevant to test-taking. Fundamental change is in part being provided by China's economy opening up and the increasing recognition that Chinese students must compete on a global stage. The concept that "exams dictate the future" is slowly losing its relevance. Further reform to allow private capital into the higher-education system and the introduction of nongovernmental organizations into the education sphere will help accelerate this process. Only in this way can the quality of education in China experience fundamental improvement.

## Commercial Educational Websites

The advantages and disadvantages of these websites are relatively obvious. The advantages of such sites are in the provision of teaching and related services which, when compared with a traditional classroom education, has obvious strong points. The first is the ease of use, which for many parents who are on a low income means that they save time and money

compared to sending their children to a traditional tutor. In addition, online resources give parents who are living in relatively poor areas access to high-quality teaching materials. Second, commercial websites offer a wide variety of services, which when compared to government-run or nonprofit websites seems positively abundant. Lastly, students can move at their own pace, allowing for constant reviewing of online material, as well as online Q&A sections that are responsive and staffed by highly qualified teachers.

Of course, the competitive defects of these of websites are clear to see. First, there are few if any qualified organizations or authorized third-party agencies who can assess their quality and offer guidance to customers. As a result, there are quite a few websites offering products and service that leave much to be desired, which has a negative impact on the market as a whole. Second, governmental education institutions mainly control public education resources, and future growth of the industry will depend upon increased outside investment, including the adoption of outside educational materials, videos, and other related educational materials. Given that the Chinese government hasn't yet promulgated a systematic regulatory system, it behooves potential investors to approach China's online education market slowly and with patience.





## CHAPTER

# 3

## Online Education in Hong Kong

**Nicole Idanna Alpert**

“What a computer is to me is, it’s the most remarkable tool that we’ve ever come up with, and it’s the equivalent of a bicycle for our minds.” —Steve Jobs (Jobs, 1991)

### Introduction

In 1997, Hong Kong became the Hong Kong Special Administrative Region (HKSAR) of the People’s Republic of China, sometimes referred to as “the handover,” when the region came under Chinese rule. HKSAR was allowed to retain autonomy, except in foreign affairs and defense, for 50 years. HKSAR has a population of 7.1 million people, with a 94% literacy rate, and 4.5% of HKSAR’s GDP is spent on education.<sup>1</sup>

In a study comparing Hong Kong to Finland’s online education efforts (Law, Kankaanranta, & Chow, 2005), it was found that in Finland, “the most prominent role played by ICT was that of a scaffold to build connectedness, which was a critical feature.” However, in the Hong Kong case studies, ICT was mainly used as a cognitive or productivity tool to accomplish a task. The study suggests that if ICT is not used as a main feature but as a tool to complete an assignment, online education is still lagging behind.

Hong Kong is a metropolitan city where personal computers (PCs) and Internet connections are common in households; at least 74% of all domestic households had Internet-connected PCs in late 2009 (The Census and Statistics Department [C&SD], 2009). The rate of PC usage was higher among younger people, better-educated people, and students. Hong Kong

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<sup>1</sup> <https://www.cia.gov/library/publications/the-world-factbook/geos/hk.html>

ranks twelfth in the 2010–2011 INSEAD and World Economic Forum “The Global Information Technology Report.”

Similar to findings in the United States, just over 66% of Chinese parents in mid-2000 viewed the Internet as a distraction to learning (Chan & Shen, 2004). Schools and the government have since put more emphasis in gaining not only parental acceptance but also partnership in working with their children at home, but the policies have not always led to a greater use of Information and Communications Technology (ICT).

Although Hong Kong education is fairly conservative, technology has changed things. Innovative teachers realize that students no longer need to be taught all in the same way, with disregard to their individual styles of learning. Another understanding recently adopted is that most learning takes place outside the classroom, and teachers will need to learn how to capture and capitalize on that primary role of learning. For Hong Kong, education policies face obstacles mainly involving a tension between the traditional paradigm of education and the new, ever-changing IT-centered (Information Technology) model.

While teachers and many ICT staff feel that changing school policy is difficult, IT has brought ubiquitous access to learning, and it is continuously changing the learning place. Traditional models of schools and learning are shifting into new paradigms. Although Hong Kong does not yet use ICT broadly in the curriculum, but rather a mash-up of different IT tools, the trend is in that direction, despite the problematic themes that are discussed below.

Hong Kong lacks a harmonious policy to help implement IT, and the issue is highlighted by the following statistics: only 86% of primary school teachers and 71% of secondary school teachers agree that the use of IT can make teaching more effective. This might be because 38% of primary school teachers and 48% of secondary school teachers are not confident in selecting the appropriate digital resources to teach. And, unfortunately for students, just over 50% of teachers frequently use IT in class (Education Bureau [EDB], 2007).

Getting in touch with students has never been easier, some educators say. The quietest student in the class could very well be the most active on social networks. IT has changed the paradigm of education, but teachers, whether working in a cloud campus or a classroom, still have a role to play today.

It is true that the top-down approach of implementation is getting flipped on its head with other options emerging, and like all change, it takes a while for those with interests in the field, specifically teachers, course providers, and bureaucrats, to get used to these shifts. IT in education—through blended learning, e-learning, or online education—can literally be termed here as disruptive innovation (Clayton Christensen definition) in all aspects of education, and there can be pushback from all interests involved.

As determined during discussions with teachers, the government is leading the change in education, rather than the teachers or principals; in some cases, students were found to be leading the teachers, asking to post their classroom materials online or to utilize Web 2.0 software. This is disruptive to the traditional teacher-student relationship; however, the teachers are responding to their students’ requests, seemingly more easily than they would

to an ICT official or to a principal with school planning documents. These teachers are seeing their efforts being rewarded, though many still shy away from using IT in the classroom.

While Hong Kong is technologically advanced, with most students having better personal technologies than their schools can afford, online education is lagging. Researchers have long compared Hong Kong to jurisdictions like New Zealand, Australia, and Singapore, and found lessons well documented lost on educators here. Perhaps, in time, efforts in implementing and organizing online education won't be initiated mainly via top-down government, but rather mirror the unique, open aspects of the Internet.

## A New Era—The First Policies

At the policy level, Hong Kong's goal is best exemplified by the following passage:

The government has been promoting the use of IT in education vigorously in the past decade. One of its goals is to turn e-learning into an effective learning mode. Through the extensive use of e-learning resources, it aims to enhance students' learning effectiveness, develop their higher-order thinking and information management abilities (which include proficiency in searching, organizing, evaluating, and presenting information), as well as to nurture their capabilities for life-long learning, which would give them a competitive edge in our rapidly changing world. It has become a global trend to use e-learning resources as a medium for learning and teaching, both inside and outside the classroom. Although e-learning resources will not completely replace printed textbooks, their use is bound to increase in the foreseeable future. (EDB, 2009)

Policy is always different from practice. Despite government efforts, some educators referred to the above passage as “hou fa fa,”<sup>2</sup> Cantonese slang meaning “silver tongue, or talking the talk, but not walking the walk.” Perhaps the fact that the government believes that textbooks will stay on as an everlasting medium portrays a shortsighted approach to online education. As a side note, Hong Kong's K–12 education system is not known to proactively offer purely online courses.

The Hong Kong government implemented many new policies after the handover on July 1, 1997. Due to a lack of experience, there was a “policy vacuum,” or a failure to achieve what the policies proscribed, often resulting in ignoring best practices and experiences from other jurisdictions (Chow, 2009):

However, policies frequently have side effects or unintended consequences. This is because the environments that policies seek to influence or manipulate are typically complex adaptive systems (e.g., governments, societies, large organizations), and the unforeseen factors may result in a policy change having counterintuitive results such

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<sup>2</sup> “hou fa fa” roughly translates to “a silver tongue,” which is how teachers and other sources referred to the government's policy toward e-learning. In contrast, many government bureaucrats took the position that the government was striving to arm teachers and students with opportunities.



as policy being partially implemented, producing unintended consequences, or even being implemented in the opposite direction to the original intentions.

Chow (2009) found what many teachers and ICT professionals admitted: a tension between the formulation of the strategy and its implementation in schools. “Despite the principals’, and often, teachers’, support for the visions of the strategy, the potential of IT to transform learning was not fully realized,” Chow wrote (among others further cited). There are many reasons for this, one being a failure to anticipate not only the cultural challenges but also the value systems and practical factors that affect attitudes toward change. Additionally, problems in implementation, with much attention paid to infrastructure, ignored teacher training and other important facets. Other problematic areas included the mother-tongue learning policy<sup>3</sup> and other policies that might affect education, in all aspects including curricula and teachers.

Since 1997, various reforms have been made to education involving curriculum, pedagogy, assessment, language medium,<sup>4</sup> structure of higher-education and secondary schools,<sup>5</sup> teacher accountability, principal and schoolwide self-evaluation, and external school reviews.

Many of these developments came about from the government’s aim after the handover to make education a central pillar of Hong Kong success. Subsequent policy addresses made it an issue to note education and the need for improvement and innovation in the sector. After the policy addresses noted online education, the government departments followed up by recommending policy in those areas. The Education and Manpower Bureau (EMB), now the Education Bureau (EDB), set out a strategy at first, and followed up with second and third strategies and pilot projects, in addition to creating working group reports and steering committees.<sup>6</sup>

In his first Policy Address in 1997, HKSAR Chief Executive, Hon. Mr. Tung Chee Hwa, had a vision for Hong Kong to be “a leader and not a follower in the information world of tomorrow.” The British had left education practices mostly unfocused while developing the SAR as an international trade center.

In his second Policy Address in 1998, Tung Chee Hwa advocated for innovation in education, an increase in government spending on education to HK\$44 billion (US\$5.7 billion) annually,

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<sup>3</sup> The mother-tongue policy, adopted by schools in 1998, discouraged the use of a mixture of Chinese and English in teaching and learning. It has recently come under review and rollback after a series of press reports documented alumni complaints that the policy held them back from learning English and thus impacted their future negatively. In addition, a Chinese University of Hong Kong study found that students learning in their mother tongue (Cantonese) had lower success rates in the Hong Kong Certificate of Education Examination overall, as well as in the Advanced Level exams (standardized exams for students who want to pursue further education; the former for senior secondary and the latter for University), and in the use of English, compared with students studying in the English medium of instruction.

<sup>4</sup> Since 1998, the mother-tongue policy had all but 114 secondary schools in Hong Kong teaching in Chinese (rather than English) as a required medium of instruction.

<sup>5</sup> Hong Kong recently changed the secondary structure to a 3-3-4 system, where university students add one year, making it a four-year study program rather than three.

<sup>6</sup> For a more complete version of the history of policy implementation regarding online education, see Nancy Law’s “CITE HK” project, as well as Chow’s 2009 dissertation; these two authors seek to empirically analyze many policies’ effectiveness. It should be noted that many of the reports cited in this chapter, particularly from schools, were written in Chinese and translated into English.

and invested HK\$630 million (US\$81 billion) to promote the further use of information technology in education (HKSAR, 1998):

Our education system has served us well but as we move into a new era, we must be responsive to changing needs. This requires us to be innovative about our teaching methods and management...

Up to this time, the use of IT in schools was very minimal, and the introduction of IT and online learning tools was slow. The British government had introduced a pilot scheme in 1984 for computer studies in secondary schools, but it was very selective (Chow, 2009). There were no official computer-related subjects in the curriculum, but the 1998 policy address sought to change the weak IT culture in education and in all other sectors.

Spurred by the government's policy address, the former EMB published its first strategy document in 1998 promoting IT in education (The First Strategy): "Information Technology for Learning in a New Era: Five-Year Strategy 1998/99 to 2002/03."<sup>7</sup> The EDB updated the document in July 2004 (The Second Strategy): "Empowering Learning and Teaching with Information Technology,"<sup>8</sup> and again "adjusted" its strategy in December 2008<sup>9</sup> to meet the changing needs of schools, teachers, and students as their capacity to use IT in the learning and teaching process develops" (EDB, 2007) in "Right Technology at the Right Time for the Right Task: The Third Strategy on Information Technology in Education"<sup>9</sup> after a consultation held in October 2007. To help policy implementation and reform, the Working Group on Textbooks and e-Learning Resources Development (WG), was formed in October 2008 to study the use and development of textbooks and e-learning resources, and in April 2010, a Steering Committee on Strategic Development of Information Technology in Education<sup>10</sup> was formed.

The First Strategy's goal was to use IT in education, enabling an information-rich world. Another goal was to foster students' attitudes and abilities for life-long learning (EMB, 1998). The policy listed four areas of improvement: access and connectivity, teacher enablement, curriculum and resource support, and community-wide culture. It also noted a need for a "paradigm shift" from a textbook-based and teacher-centered mode to a more interactive and learner- or user-centered mode, emphasizing the need to adapt to a new era.

The Second Strategy, in 2004, had goals for developing digital learning resources in all aspects of education. The Hong Kong Education City (HKEdCity<sup>11</sup>), a nonprofit subsidiary of the government, was given the responsibility of promoting online learning resources and to play the role of a market facilitator.

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<sup>7</sup> [http://www.edb.gov.hk/FileManager/EN/Content\\_2309/five%20year%20strategy%2099%20to%2003.zip](http://www.edb.gov.hk/FileManager/EN/Content_2309/five%20year%20strategy%2099%20to%2003.zip)

<sup>8</sup> <http://www.edb.gov.hk/index.aspx?nodeID=2497&langno=1>

<sup>9</sup> <http://www.edb.gov.hk/ited/3rdStrategy/>

<sup>10</sup> <http://www.edb.gov.hk/index.aspx?nodeID=6740&langno=1>

<sup>11</sup> <http://www.hkedcity.net/edb/teachingresources/>

The Third Strategy, in 2008, touched upon what many proponents of online education had already—that the human factor was missing—and sought to fix that in the policy and improve the IT literacy of all stakeholders: teachers, students, and parents. HKEdCity was given the responsibility to create a “Depository of Curriculum-based Learning and Teaching Resources” (the Depository) to share experiences and recommendations of online learning tools suitable for the curriculum. The Third Strategy also realized that not only was the human factor unprepared and ignored, but also that teachers needed more time to add IT to their workload to use and integrate previous strategies’ aims for IT in education.

## Hong Kong Education City Ltd. (HKEdCity)

Many universities attempted to create virtual learning spaces prior to the First Strategy in 1998. In 1994, The Chinese University of Hong Kong established former Hong Kong Education Information Network, which was later renamed Hong Kong School Net, a rarely used service that provided local dial-up services (e.g., email, ftp) for teachers. After the School Net, another dial-up-based service called Hong Kong Cyber Campus was promoted and supported by government funding, and in 2000, the Hong Kong Cyber Campus became the Hong Kong Education City.

A nonprofit result of the joint effort by the Education Department of Hong Kong, the Hong Kong Cyber Campus, and the Quality Education Fund, HKEdCity was set up by the government to offer online solutions and training to teachers, and to promote Internet connections in schools. It was to provide schools, teachers, and students free access to learning and management information, and it often involved all sectors of K–12 education, especially in partnerships with the private sector.

HKEdCity is the largest education website in Hong Kong, with approximately 90% of the market; that is, 9 out of 10 teachers who are members use it and membership is free. Once a member, an educator can make use of licensed materials and other resources, which includes teacher-specific resources and others organized by teachers themselves, visits to other classrooms, and a platform to exchange views. In 2009, it offered a total of 18 e-learning packages and attracted over 200,000 participations.

At the secondary level, HKEdCity’s Online Question Bank is popular and won the Hong Kong ICT award, the Gold Award in the Learning and Living category. The Bank provides an online platform for students and teachers to both practice and share papers and exam experience. Fifteen years of mathematics questions from the Hong Kong Examination and Assessment Authority (HKEAA) were made available in the first wave provision, which attracted over 4,000 students during the initial stage (HKEdCity Ltd. Annual Report, 2010). Over a period of time, teachers and students can view their profile after students’ proficiency levels are tested. Afterward, students are provided with a personalized report of their areas with strengths and weaknesses noted. For teachers, it can be used as a remedial tool, in which questions can be prescribed for students, where the tracking tool can measure how much of the content that was taught in class was understood. In its second year, the Bank was used in over 70 secondary schools. Other modules offered include:

- “SciTube,” disseminating over 120 real-life video clips of science experiments with 150 secondary schools taking part;
- “Vocab Building,” helping students learn and categorize vocabulary through practice exercises and revision quizzes, used by 263 primary schools with an average of 24,000 students taking part in the exercises, and
- “eMath – a Partnering with Po Leung Kuk Chee Jing Yin Primary School,” consisting of an online resources pack for teaching and learning at primary levels using online interactive games (HKEdCity Ltd. Annual Report, 2010).

A complementary product to what is offered by the private sector to schools, HKEdCity offers some infrastructure to provide fundamental basics. There is no mandatory training requirement, but training for products is offered every year. On an annual basis, HKEdCity sends service brochures to schools for training to update their subscribed and new services; this training is only available during a certain timeframe.

HKEdCity has many partners and owns the technology platform. All of the online resources and products have various purposes. The Online Question Bank is a collaborative project with the HKEAA, and the product to help dyslexic students came from a partnership with a private company. In addition, NGOs (non-governmental organizations), universities, and government provide other partnerships to create new products.

Senior officials of HKEdCity reported that Hong Kong’s infrastructure was good compared to other countries, but that there was a need for other online resources. Used mostly for extracurricular activities, online resources are not yet involved in the formal education process.

An HKEdCity poll presents a different view of teacher attitudes to online learning. Their research, done in December 2010, reported that teachers are positive about online learning, search for online sources regularly, and are receptive to their implementation (which slightly differs from government reports discussed later in this chapter).

HKEdCity offers the Self-evaluation Platform (SEP) on Information Technology in Education (ITEd) for teachers to identify metrics in the classroom. Many private or commercially available Web-based learning support platforms are teacher-centered, as in HKEdCity, and focus mainly on supporting teachers’ content management needs for uploading coursework, tracking student work, or communication with students.

HKEdCity is actually not open to student membership initially; teachers must enroll students. Thus, the nonprofit is more of a management-based tool that must be sought out by teachers, which may be a deterrent as teacher workload is commonly cited as a reason that IT is left out in the classroom.

## Financing

By the end of 2008, around the time the Third Strategy was published, the government had spent at least \$1 million (HK\$8 million) on IT in education, with \$697,000 (HK\$5.4 million) on nonrecurrent projects such as the initial set up of IT facilities in schools and \$232,000 (HK\$1.8 million) on recurrent items such as hiring technical personnel or services for schools, and maintenance and repair of IT hardware (EDB, 2007). The breakdown of spending highlights many obstacles said to face online education in Hong Kong today: teacher workload, knowledge, and enthusiasm with a small percentage invested in teacher training and development.

In an effort to allow schools greater flexibility to manage their own resources according to their needs and priorities, the EDB implemented a block IT grant, which merged IT-related grants. In addition, schools could also reallocate their available resources under various recurrent and nonrecurrent funds to facilitate the implementation of their ITeD development plans. This meant that funds that were allocated for ICT implementation were sometimes directed elsewhere, sometimes explicitly non-IT related.

## Recent Policies

The policies following the Third Strategy have further homed in on worries from the public regarding education. However, it took three years from the start of the WG's research and recommendation to start changing policy. Hong Kong has a relatively centralized education system, with detailed master plans that outline clear strategies, targets, timelines, and budget allocations for online education. Singapore is like Hong Kong in this way, but discerning how much stayed at the rhetoric level is a task (Pelgrum & Law, 2003).

In the 2009–2010 Policy Agenda, published with the Policy Address, the government advocated to:

...take forward recommendations made by the Working Group on Textbooks and e-Learning Resources Development, which include a series of measures to address the public's concern on continuing textbook price increase and measures to enhance and accelerate the development of the online depository of curriculum-based learning and teaching resources and the development of e-learning with a view to enhancing students' effectiveness in learning. (HKSAR, 2009)

Continuing upon these efforts in 2010, the Policy Agenda recommended similar proposals, in almost the same words:

Continuing to take forward the recommendations made by the Working Group on Textbooks and e-Learning Resources Development, including preparation for the implementation of debundling textbooks and teaching materials for pricing, launching of the pilot scheme on e-learning in schools, as well as the acceleration of

the development of the online depository of curriculum-based learning and teaching resources, with a view to enhancing students' effectiveness in learning. (HKSAR, 2010)

A new program was started to enable all 410,000 students receiving education at primary and secondary levels in 300,000 low-income families, especially the 8% without Internet access at home, to gain access to the Internet for the purpose of learning. The WG recommended a three-year pilot scheme on "promoting e-learning" to launch in 20 to 30 local schools in the 2010–2011 school year, and to give more resources to HKEdCity's Depository, as well as more resources in the form of a one-time grant to all local schools, amounting to some \$3,780 - \$9,032 (HK\$30,000 to HK\$70,000) per school, for purchasing e-learning resources for students and teaching materials, as required over a three-year period.

Additionally, the WG recommended that HKEdCity set up an e-commerce platform for e-learning resources and an online community for teachers. A majority of the WG's work was spent on debundling textbooks, and teaching and learning resources to allow a user-pays basis of selling. In mid-2010, a steering committee was named to supervise the implementation of the pilot scheme and to evaluate the outcome and effectiveness of the pilot scheme, as well as to make recommendations to the government regarding long-term strategies on using e-learning resources. The study concluded that the EDB should "provide a fair playing field for the publishing sector to compete, so that reasonably priced textbooks and e-learning resources can be produced by textbook publishers and other organizations" (WG, 2009).

But for all the preparation, working groups, and committees—and funds allocated—it is not entirely clear if a large enough impact has been made. One could argue that because of an overwhelming absence of online-only education, these policies have fallen short, or that the policies and funding have not been specific enough, leaving educators in a lurch. The EDB recently stated that because it lacked pricing information, it didn't know whether schools had sufficient resources to purchase teaching materials; however, "if a school finds that it has insufficient resources to purchase teaching materials, the EDB will assess the actual situation of the school and allocate additional resources through the existing funding mechanism for the purchase of necessary teaching materials" (Legislative Council Panel on Education, 2010).

## An Assessment of Policy in Practice—ICT in Schools

The government's most recent consultation document on the Third Strategy (EDB, 2007) listed these indicators of IT in education in Hong Kong.

- All public sector schools have broadband connection to the Internet.
- The student-to-computer ratios are 6:1 in primary schools and 4:1 in secondary schools, and sometimes 2:1 in rural areas of outlying islands (Latchem & Jung, 2009). This is comparable to the ratio of 5:1 in OECD (Organisation for Economic Co-operation and Development) countries such as the United Kingdom, United States, Australia, and Canada, which have more advanced IT in education.

- Nearly 90% of primary school students and 80% of secondary school students like to use computers to learn in class.
- Eighty-five percent of primary school students and 60% of secondary school students like to use computers to learn beyond school hours.
- IT in education is perceived by both school heads and teachers as one of the top facilitating factors contributing to progress in the implementation of curriculum reform.
- Eighty-six percent of primary school teachers and 71% of secondary school teachers agree that the use of IT can make teaching more effective.
- Sixty-two percent of primary school teachers and 52% of secondary school teachers are confident in selecting the appropriate digital resources to teach.
- Just over 50% of teachers frequently use IT in class.
- Sixty percent of parents endorse the use of IT for learning.
- Ninety-five percent of primary and secondary school students have access to computers at home. Out of these students, 97% have access to the Internet at home.
- Ninety-nine percent of primary and secondary school students claim that they have knowledge of using computers.

Additionally, the Consultation Document (EDB, 2007) reported on stakeholder feedback, which still resonates in the Working Group's report (WG, 2009) published two years later.<sup>12</sup> These are the notable comments.

- Although school leaders are satisfied with the IT facilities available in schools, they expect adequate recurrent resources to replace or upgrade the facilities on a regular basis to sustain development. Most often quoted IT facilities or services to be upgraded or enhanced are computers and projectors in classrooms, multimedia computer rooms, e-learning platforms, and mobile learning devices.
- Eighty percent of school heads regard digital resources from the HKEdCity website and the Internet important.
- Teachers expect HKEdCity to focus on assisting teachers to source, locate, and acquire curriculum-based digital resources.
- Integration of IT into the teaching of [key learning areas of] the curriculum is the key to seamless integration of IT into education.
- Teachers, especially secondary school teachers, may be too busy to select and integrate digital resources into their lesson plans.

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<sup>12</sup> See the Appendix for a detailed summary.

- Students should be aware of the social impact of rapid and indiscriminate exchange of information over the Internet and be able to exercise judgment in using and publishing information on the Internet.
- Although parents seldom participate in activities related to IT that are organized by schools, they expect assistance to enable them to guide their children in using IT responsibly and legally at home.

The government's push for better IT infrastructure in schools was well received, but it isn't clear whether the students or teachers have benefited. The necessary components in schools are all there, but they haven't worked well together and to this day remain disorganized.

Today, most schools are still trying to implement and achieve the government's strategy goals. Each school's efforts are ad hoc and rely on ICT staff, the principals, and teachers. The focus of each school in their use of IT in education varies greatly, with many schools placing different weight on priorities and adopting various models of implementation. As discussed in the "School Development Plans" section below, some schools place the majority of support on developing a learning culture, while others focus mainly on the infrastructure or a top-down approach, supporting old paradigms.

## Teacher Tools

Many teachers use online education in the form of learning modules to supplement class learning rather than structured online courses. Teachers are both digital learning resource editors and facilitators to bring digital learning content into the classroom; they also need to manage learning and the tools used. The government responded that normally teachers insert online learning at junctures they deem appropriate to facilitate learning, but online education is more often used for remedial work. All of these endeavors are school-based, with the teachers designing, implementing, and managing the online education. Given the large additional amount of work that teachers must do to bring online education into the classroom, it is a fair question to wonder if what is implemented is truly benefiting students or if it is merely another duty that teachers need to check off their list.

There are a few prevailing tools that are used by most schools, such as eClass, an intranet system used by teachers and students to communicate that is able to record Key Performance Measures. WebSAMS (Web School Administration and Management System) is also used to post information about societies and clubs, among many other applications. Additionally, sites such as Wisenews (a news search site like Factiva) and additional nonprofit and private solutions are made available, often through HKEdCity. There are many modules offered through EDB and HKEdCity to help in nearly all areas of study.

However, while there is an abundance of online tools and resources, it is increasingly difficult for teachers to sort through these tools. Depositories with hundreds of tools are only helpful if teachers know what is safe to implement in their classrooms; therefore, a long overdue rating system has been advised along with a better platform for teachers to share experiences.



Despite a high technological advantage, the school sector has not been a major user of online learning. Online learning management systems and Web 2.0 are in use, but a larger scale of use affecting courses, curricula, and teaching practices, etc., is not typically applied in K–12 education.

## Online Education as a Last Resort

Most online learning has been made a secondary media or one of crisis management in Hong Kong schools. In 2003, following the SARS outbreak, schools were forced to close down. Contact was very limited, but schools needed to inform the students when to come back to class. Online systems helped facilitate school plans for communicating with students, parents, teachers, and the community, as some schools closed down at critical times (i.e., before exams). Post 2003, when new reforms in health policies were implemented, the plans that had been drawn up to use resources online to help manage schools during the confusion of SARS were no longer used, and schools reverted to their previous approach as soon as SARS was no longer a threat and disruption.

Five years later, H1N1 (Avian/Swine Flu) hit Hong Kong and some schools closed due to “bird flu.” Schools brought back online education until students could return to class. During this time, ICT enabled 560,000 Hong Kong students to study at home (Latchem & Jung, 2009). However, the idea of a cloud campus was not a prevailing notion in 2008, and as soon as the students were back in the classroom, any benefit from the online education period was ignored, and they were taught in a teacher-centric environment.

## Teachers vs. ICT Staff

ICT groups faced hardships in implementation from teacher’s attitudes and structural hardships, especially with workload time commitments. ICT staff have also had to prove to teachers the benefits that online platforms and ICT in the classroom can bring, although online platforms have been used for years by teachers, including applications like email.

In Hong Kong, ICT staff have the task of shifting email and messenger culture to concepts of virtual learning spaces, notice boards, and online repositories—basically that of an adoption to a social networking culture in education. As one German Swiss International School (GSIS) ICT senior reported, “Unlike social networking, which works virally, it’s not been the same for education in Hong Kong.”

There is also a cultural shift that is necessary. On one level, educators have accepted logically that ICT should be implemented. However, in terms of becoming a part of the fabric of education, as a way of learning in a teacher’s class, it has a long way to go before becoming truly accepted and used in practice.

Some teachers are afraid that ICT will replace them or put them on a computer all the time. These underlying worries indicate that these new changes will challenge their pedagogy. Indeed, online learning does raise questions about pedagogy, and it will subsequently change—with teachers railing against it or not.

“Hong Kong is very innovative, but the practices in schools might not reflect that,” ICT staff communicated. The values about the role of the teacher and learning in Hong Kong’s culture make it problematic to introduce an online learning platform; like all social media, learning is democratized. “Suddenly, as educators, the oligarchy [that] used to be enjoyed begins to crumble. The social network is the new democracy,” an ICT senior said, and communicated that educators are very nervous about their changing role. However, the government reports that in schools, ICT is relished in the classroom.

For educators who fear change, ICT threatens the traditional structures of learning and the definitions of what it is, who is the learner, the pedagogy, and so on. Parents are crucial in implementing the new platform, which is why the Third Strategy seeks to involve them in a greater capacity. Many online learning projects are take-home assignments, and if parents aren’t involved, ICT staff believe that online education won’t go anywhere. Parents believe that “If [sic] on the computer, you are not learning or you are playing games,” ICT staff said. Thus, many schools have started workshops with parents to give information on what their children are working on, to show that online learning does work and that their children are not merely “playing games.”

## Assessment of Policies

The ad hoc approach schools have been free to take is not the problem with the implementation of online learning in Hong Kong, nor the goals of the ITed Strategy. It is more an issue with the details of implementation, such as the financial arrangements, teacher enablement, resources, and attitude and culture that have failed in being organized and combined to create an outcome that would make room for a paradigm shift in classrooms, from a traditional mode (textbook-based and teacher-centric) to a more interactive and learner-based approach.

Researchers have learned that participants answering questionnaires regarding online education often did not understand the questions as they were meant, particularly the definition and aspects of online learning. Also, in speaking with the EDB personnel who were involved with online learning, the same issue of misunderstanding was found.

Before the announcement of the First Strategy, very few primary schools had computers for instructional purposes, but nearly all secondary schools at that time had at least one computer lab, which was generally limited to teaching computer-related subjects. The use of ICT across the curriculum was in itself a relatively new phenomenon (Law, Kankaanranta, & Chow, 2005). ICT integration among schools was usually ad hoc and highly varied, although the policies that had introduced them had detailed overall targets and plans.

Many teachers said that the goals were not clear, and this was especially difficult given the painstaking detail some principals and teachers paid to putting the policies into practice. For instance, the goals in the Strategy documents were clear at a rhetoric level, but what was not clear was how they would accomplish these goals: in 5 years, at least 25% of the teaching

and learning should be supported through ICT and within 10 years, all teachers and grade 11 graduates should achieve competence with ICT tools.

To aid teachers, the Technical Support Service (TSS) program was created to provide technical support for the hardware and troubleshooting and technical training for the teachers. All Hong Kong teachers (about 50,600) had completed training at the basic level (basic, intermediate, and advanced were offered) by the academic year 2002–2003. Following the accomplished target, all pre-service student teachers now have to attain the upper intermediate level before they can graduate.

The EMB also incentivized schools through funding programs to innovate ICT learning practices and promoted competition among some of the schools. In the early stages, it was the schools, teachers' unions (notably the Hong Kong Professional Teachers' Union and the Hong Kong Federation of Education Workers), and organizations that developed their own platforms to disseminate information for teachers. Also, many universities and tertiary institutions, including the Hong Kong Institute of Education and the University of Hong Kong, developed websites to help promote IT in education. Today, HKEdCity exists with these other resources.

Law, Kankaanranta, and Chow (2005) found that while the EDB took steps, major implementation efforts were lost on schools, based on these findings.

- No establishment of wider support structures existed beyond the school.
- Cross-school collaboration and support was limited.
- Schools received financial support from the government, but rarely was it the case that pedagogical support was received from beyond the school.
- The schools and the teachers involved had to make tremendous efforts in bootstrapping their innovations from initial conceptualization through to the final outcome, and they bore the consequences of all the risks.

Like most efforts, the first schools to implement ICT weren't going to be successful based on enthusiasm alone. In an effort to identify successful paths, Yuen (2000) studied the types of integration taking place during the First Strategy. She found that the principals and teachers faced the same hardships that schools still face today: a lack of infrastructure, knowledge, and materials. Like initial implementation efforts, today the use of ICT in the classroom is confined to the trivial, and the impact on learning outcomes is confined; although at a better level than during the First Strategy, there has not been enough marked improvement.

Staff development was limited, and principals were found to have taken charge of resource deployment. The coupling of these two effects meant that ICT used at first had no relation to the teacher's skills or the existing infrastructure because the implementation was determined by the school principal. In many cases, it was not only teachers that needed development training but the principals as well (Pelgrum & Law, 2003).

Lankshear, Snyder, and Green (2000) noted that the tension between the available computing infrastructure and aspirations, as well as the availability of infrastructure beyond the school, is currently a problem defined in schools. Another tension is found in the uneven distribution of resources and expertise. If teachers with IT knowledge left a school, they'd take that knowledge with them, leaving little chance for it to be picked up and continued by others.

The introduction of new technological tools is still seen as a challenge, most ICT representatives reported, and thus might not be embraced as an opportunity. Established teachers (and the cultures and trends that are present) can work against the developments of the ICT-skilled teachers and staff, as ICT competes with existing values and can in turn foster resentment among some teachers. Feelings of resentment were commonly expressed from ICT leaders and aptly predicted by Lankshear, Snyder, and Green (2000).

The Centre for Information Technology in Education of the University of Hong Kong (CITE, 2003) concluded that the lack of a focus in the strategic plans was a major obstacle. Because the implementation of each strategic element was conducted independently, there was no relation to the curriculum goals targeted and a lack of consideration to the roles played by teachers. The strategy implementation often resulted in encouraging teachers to spend their energy on the design and implementation of multimedia curriculum resources, thus indirectly promoting traditional, teacher-centered (or resource-centered) learning.

## School Development Plans

Schools actively collaborate with the Department of Education and tertiary institutions, NGOs, or private professionals for IT development solutions, either through HKEdCity or their own efforts. Public and private schools have worked with major technology companies; international schools, for example, have partnerships with Apple to provide laptops to their students. Most schools don't implement a one-size-fits-all online learning track or teacher management. Schools are known to use Google apps, blogs, social networking, wikis, and other applications for their online education needs.

Currently, schools conduct self-evaluations prior to the Planning Phase, and some publish their plans, which vary widely in length, scope, and description. The Lai King Catholic Secondary School's 2010 plan is typical of plans that most secondary schools have listed. Two planning documents exist, a School Information Technology in Education Development Plan and a broader School Development Plan.

### Lai King Catholic Secondary School

Like most schools, Lai King Catholic published a working School Development Plan, outlining its current strengths and weaknesses (Lai King Catholic Secondary School, 2010).

## Strengths

- Staff turnover is low, and the teachers are dedicated, highly motivated individuals.
- There is a spirit of teamwork and a strong sense of belonging in the school.
- Simplicity is our school ethos, and our well-behaved students are of good character with well-educated and highly respected parents.

## Weaknesses

- Space is insufficient.
- Students are more passive, self-learning ability is low, and there is still room for improvement.
- Students have poor language proficiency, which needs to be strengthened.
- Some students have low self-management skills, and therefore rely on those more capable than themselves.
- Teachers carry heavy workloads, thus they are not fully able to take care of the needs of students.

While Lai King Catholic personnel looked directly at improvements needed in many areas, none mentioned implementation of IT as a possible solution to the problems. There are continued plans for offering incentives to students to improve their IT literacy, but no such direct IT solutions were offered for other learning difficulties that students face.

The School Information Technology Education Program (2009–2010) for Lai King Catholic Secondary School set the following goals:

1. Implement effective school-based IT education programs to meet the specific needs of students
2. Promote increased use of IT in teaching, learning, and extracurricular activities
3. Help schools establish a curriculum in the application of information technology culture
4. Assist in teaching models to establish a more interactive and student-centered approach and to promote information technology into the curriculum
5. Raise parents' awareness of information technology, thereby increasing communication and understanding with students and parents

Like other schools, Lai King Catholic Secondary School is a connected school with computer networks that are wired and wireless. Teachers can use computers at any time for work online, lesson planning, and teaching. All classrooms and special rooms are equipped with projectors and computers, and the school has a computer lab, Multimedia Learning Centre, Computer-Assisted Learning Centre, and language learning room. Each classroom is

equipped with desktop computers for the general class use. The school's ICT facilitators are well trained and helpful. The school reports that many teachers completed both basic and intermediate computer training; some completed higher-level courses, but this training may not translate directly into classroom needs or teacher management needs.

The school also boasts a strong network of teachers and professionals who integrate IT development in the school through its curriculum. This group assesses teaching different subjects using software and explores how blended learning can be applied to teaching different subjects. However, these professional abilities may not emerge into the classroom as blended learning opportunities. After years of IT development, the teachers accumulated a number of teaching resources and implemented IT solutions in the classroom, but it may not be organized well enough to create a solution for coursework or management activities. Additionally, the school reports that IT solutions in education are not being taken advantage of because software is limited, and coupled with the heavy workload already placed on teachers, time to design and implement such programs is not available. Teachers have stated that the speed of developments is also an issue given the lack of time, which means that implementing IT in education is subject to greater restrictions.

During interviews, participants stated that hardware and software changes before they can successfully implement their programs and projects in their classrooms, which is a factor that makes it harder for teacher development and training. Fashions change, but ultimately schools and teachers have much more control over what they have their students use in online tools. If the time to develop the curriculum and work in online solutions is not available, this task involving only a limited use of IT becomes all the more difficult.

## St. Bonaventure College

St. Bonaventure College's School Information Technology in Education Development Plan (St. Bonaventure College, 2009) is similar to the one for Lai King Catholic. It mirrors the strengths that IT team members have high IT qualifications and that the school has use of good equipment. It notes the common weakness that the school is plagued by teachers' heavy workloads, leaving little time to devote to implementing ICT; it also notes that the attitudes of teachers using IT could be improved (as many in the field have mentioned). Teachers lack patience in using IT resources, and thus, may call the IT team for very trivial issues.

Financial issues were also listed as a weakness. In the school's broader School Development Plan (St. Bonaventure College, 2010), the improvement of the individual student was a main focus, to "help students understand their own strengths, gain positive self-confidence, values, and build self-confidence," something that online learning can help facilitate; yet again, the broader goals do not implement, or mention, IT solutions.

## Tak Nga Secondary School

Tak Nga Secondary School is similar to the schools described above in that it reports (Tak Nga Secondary School, 2010) teachers have workloads that are too heavy; perhaps it is more honest by noting that while “teacher morale is rising . . . there is fluctuation in the students’ academic performance. Students are passive and learning motivation is low. The ever-increasing workload threatens the physical and psychological health of teachers. We lost some experienced teachers.” Their organizational outlook appears worse than other case studies listed above, and one can imagine how much more difficult implementing ICT would be, given the circumstances.

## Hong Kong International School (HKIS)

International schools, considered more prestigious in the city and much more expensive to attend, tell a different story of ICT implementation. Given the unique position of these schools, and the competition among them, the schools often make efforts in ICT without government impetus. The reason given for the increased action is a different school and teaching culture. The seniors of ICT reported that the teaching staff have learned how teachers and ICT can work together in the classroom; however, some teachers still aren’t willing to adopt new ICT tools for the same reason that others rail against ICT: a lack of time or vested interests. HKIS ICT staff recommend tools and solutions in classrooms by occasionally doing “learning walks” through classes, both to observe the use of existing tools and to give advise on what additions or changes could be made. HKIS also takes observations from students and conducts surveys with students and teachers regarding where they can help. They try to engage their teachers by showing how fast students respond to online discussions from applications such as social networking and Web 2.0 software.

HKIS is very entrepreneurial and enthusiastic about its online education. Online resources—and the proper use of them—are helping students learn more and create greater discourse “given the craving for instant feedback” in the generations attending school today, an HKIS ICT staff member said.

Many students at international Hong Kong schools have different backgrounds. They may be from the local area, have lived an expatriate so-called “bubble” lifestyle, or are from another country and culture. HKIS believes that the use of IT can break down social walls, which is good in more ways than just education.

The school found through its Internet tracking tools that Internet video traffic created 50% of its Web profile, and therefore, it integrated Internet videos for teachers and students into its ICT strategy. In the classroom, teachers and students can now upload and watch education practices, courses, or student activities. Many offices and schools discourage or block Internet video and social networking, but HKIS embraces them. The prevalence of social networking also caused the school to encourage teachers to create profiles for learning purposes. HKIS is rather unique in this area, as most schools don’t allow connections

or block such social media sites. However, HKIS ICT leaders say that “these sites are what you make of them” and reiterates individual responsibility.

“HKIS tech plans are grounded in a philosophy promising an access to information,” their ICT leaders said. “IT departments should become extinct, save for hardware.” HKIS is now developing its own learning management system, and instead of using private solutions, is improving on what is already available in the market and tailoring their system to their students’ needs. While like anything new that is first viewed skeptically, staff and teachers at HKIS seem less put off by the new technology and uses of learning in the classroom, as well as their own changing roles, than their peers in local schools seem to be.

## German Swiss International School (GSIS)

GSIS is in what its ICT seniors say are the “early stages” of ICT implementation. At GSIS, like other schools, ICT in the classroom represents a “huge culture change—and it takes much time to adjust to,” a GSIS ICT senior said. “With any technology, you do attract high-end users quickly, and get a group of enthusiasts, not maybe advocates. Thus, you need to create a culture where online learning helps teachers, solves problems, and aids management and the process itself,” he continued. “We have a road map, a big picture, an end in mind, although it’s constantly changing technology. Some do wish it would go away.” With ICT, GSIS has faced more of what other schools in this chapter have described regarding teacher attitudes and pushback. Therefore, they have had to wean the staff off traditional practices and move into the new era, using management platforms. In this case, “even the most anti-IT teachers are happy,” ICT staff said, and establishing that first cultural shift allows seeds for further development.

GSIS is still using IT predominantly to manage learning and distribute information, such as developing news bulletins and digital newsrooms for parents. In an effort to get parents’ support of the cultural shift toward a more friendly approach to ICT in the school, parent volunteers are used as support staff to help update boards, keeping these developments non-threatening to current administrators and teachers. This helps keep employees’ workloads manageable.

Unlike HKIS, only small groups in GSIS are using learning platforms and sophisticated assessments in online education. Another main difference between the two international schools is that social networking is discouraged at GSIS. ICT senior staff members are nervous about using the platform as a learning tool because students may use the social media only for personal use. GSIS believes that learning platforms should be distinguished from recreational play in the classroom, because “learning happens everywhere, but only if you’re paying attention.”

## Conclusions on School-Based Implementation

Only a limited number of school plans are available and up-to-date, and of those that are available, many schools don’t consider online learning solutions a pedagogical or learning solution across the board. At this time, some schools may broadly apply IT solutions in a



variety of areas, with fewer using blended learning as a main medium in the curriculum. This may be because of the obstacles listed above, such as culture and workload or that subject-specific tools are typically used at a senior secondary school level (in local schools), and these ICT products require teachers to be more knowledgeable on the subject and tools. Indeed, the statistics cited here report that secondary school teachers are less ICT-friendly than their primary school peers.

There are encouraging developments in the schools, but these aren't silver bullets. Price Memorial Catholic Primary School, for example, plans to lay the foundation for independent learning and build a campus environment conducive to independent study, providing sufficient IT infrastructure for learning and teaching. A big part of implementing the groundwork is in the school administration levels; the school plans to provide opportunities for a shift in culture to emerge that should help the use of ICT in the classroom. To combat the issue of time management and an increasing teacher workload, the school plans to use a top-down approach with gradual adjustments. Depending on how the top-down approach is used, it can make or break the online education efforts in a school.

The top-down approach solves the time dilemma many teachers have, but it may not be as effective for building curriculum. Thus, schools need to tackle the workload issue and meet teachers halfway. Hong Kong universities were commissioned by the government to study best practices, and their research suggests that the IT and learning/management framework be co-designed by the principals, researchers, and teachers, using a bottom-up approach so that the curriculum and assessment design and development would be made together with related classroom activities and assessment tools (CITE M2 key findings & recommendations, 2003).

Parents and teachers need to accept the new learning methodologies. "Would parents have the same reaction to kids playing cards in the hallway as they would to their kids stuck to a computer or an iPhone?" one ICT staff member asks. "In the 21st century, as an educator, you must bring IT into the mix and integrate the classroom," an enthusiast communicated.

One of the many problems educators face is that ICT tools and infrastructure are not readily available. Teachers or ICT staff must do the work to solicit the necessary funds, which involves submitting grant applications to various agencies. Additionally, teachers often need to equip themselves with the necessary skills and training, which can be done by attending relevant courses, if available, or by self-study. But in a world where workload is so often mentioned as a problem, and in a city famous for its long hours and overtime, teachers may already fail before trying. While depository systems such as at HKEdCity are being improved, for the most part, teachers only have support from other teachers directly involved in their school, especially if ICT staff cannot help them accomplish their goals. Many times, if teachers succeed in developing new tools and receive grant funding, they need to manage the entire process without external support, except for the actual funding for the particular project.

Overall, in local schools, the largest factors found that influence ICT adoption is school background, principal leadership, school strategies, government and community support,

past experience, and school ICT infrastructure. Many times, the enthusiasts initiate new forms of ICT learning in the classroom, or it may be a community source or parent-led initiative. In many cases, if the school vision is not aligned with promoting ICT as a learning tool and doesn't have the experience of carrying out changes, ICT contributing to a new emergence of education is not likely (CITE M2 key findings & recommendations, 2003). School leadership—that is, principals who are supportive and welcome contributions from teachers and ICT staff—is imperative.

## Alternative Approaches

In “Hong Kong’s Boom in Distance Education May Be a Sign of What’s to Come in Asia,” Cohen (2000) notes that more than 100,000 students have studied at the Open University of Hong Kong during its first 11 years of operation, with about 10% of them earning degrees during that time. Clearly, students are looking for different learning opportunities as they get older, and they consider online education and similar alternatives the answer.

A senior official from Open University stated that the main problem was not only implementation of online education, but also with the structure of the schools themselves, which placed “too much focus on public exams. . . . If focus is on passing public exams, students and teachers have pressures on how to prepare for the exam.” One senior at Open University reported,

“I can tell you, I was a victim of this public exam phenomenon when I was in the advanced level exam, and I could therefore not apply for university admission. As a result, I did not have my university education in Hong Kong. If, at that time, I did not explore other opportunities, I would have just ended up getting a job, being a clerk or something. Fortunately, I decided I would not be happy with that situation and decided to do something about it. . . . [I] went to the United States. Failure in the public exam, strictly speaking, not many students will be as lucky as I was.”

Students are not supported when they do not do well on their exams, and they have to pay for other options. These students do not receive as much funding as the average University Grants Committee student would. Thus, the arrival of tutors has become an emerging industry in Hong Kong, and the most famous have their faces plastered on billboards and buses in Hong Kong’s busiest areas. The tutors’ schools claim to help students pass or “ace” their exams. Reportedly, these tutors are in such high demand that some can make at least HK\$1million (approximately US\$128,500) per year. Most of these tutors do not focus on improving overall knowledge but rather only prepare students for the exams that will ultimately place them in Hong Kong universities. For those students who don’t pass the exams, their options are to study abroad or to attend nontraditional universities and programs, such as community colleges with associate degrees.

Recently, Hong Kong has joined the “Occupy Wall Street” movement, but for years, residents—both young and old—have called for ways to better their lives. No doubt many

chances have been missed at all ages because Hong Kong's level of IT in education is only half-paced at this time, instead of a full-fledged cornucopia of learning opportunities.

## Conclusion

Schools can't be changed overnight, and any change needs to be gradual so as not to scare stakeholders into a traditional corner. Often during the survey, ICT staff mentioned online learning as being used for the delivery of old classroom practices, but this is being done less often as we move into the future. Experience and adoption of online learning cannot be simply "transferred" by direct imitation of government policy; it requires creativity and trial and error under the government's ad hoc strategy.

Most schools in Hong Kong have the basic conditions for building new and innovative learning practices involving the use of ICT, such as infrastructure, support, and development. However, it takes time for teachers to select online resources for course material, and many expect HKEdCity or the government to take this responsibility. Some teachers regard online education as another burden that they do not have time for. Thus, not including the few enthusiasts and pilot schemes promoting online learning, the driving force to use new technology to learn will have to come from students, rather than teachers or the government. And in fact, this trend has already appeared as students easily use new technology and request that the teachers implement more IT in their education. There will be a division in terms of ability, mindset, and culture between teachers (who are "digital immigrants") and students regarding online education.

As time has gone on, educators have found that teaching has become more interactive but not as a tool to cater to differences among students in the same classroom (Chow, 2009). Teachers continue to teach to the test; veering from the traditional pattern has high risks, given the dependence on passing exams. Thus, ICT is mostly used as a tool to support teaching, rather than to facilitate learning. This could translate, then, into online education not being able to help students "learn to learn," which would violate the goals of the government's life-long learning plans. Improvement is needed in teacher training, as well as the quality and organization of the depositories for online resources.

If Hong Kong wants to become "a leader and not a follower in the information world of tomorrow," (HKSAR, 1997) improvement will need to start in the classroom. The government alone will not be able to prevail over the numerous obstacles without school and teacher support, and vice versa. In time, however, after realizing that online education represents a useful additional channel to access information and knowledge, students and parents—perhaps even teachers—will come to demand that schools readily supply it. Both a top-down approach (via the Hong Kong government) and a bottom-up one (through students, teachers, and schools) will be needed in order to devote more resources and to provide the necessary support to bring about a more learner-centered approach using online learning in the classroom.

Hong Kong's future needs to look backward to look forward. Given the teacher-centric approaches and prevailing cultures that react abrasively when coming into contact with new attempts to "radicalize" or change education, Hong Kong faces a few obstacles. Without changing the culture of teaching and learning, professionals worry that the future isn't promising. The accelerating pace of development in IT, coupled with human progress, will no doubt act as a catalyst to counter the obstacles to Hong Kong's progress with IT in education.

## Definition of Terms

**C&SD** – Census and Statistics Department

**CITE** – The Centre for Information Technology in Education of the University of Hong Kong

**EDB** – Education Bureau of the Hong Kong Government

**EMB** – Education and Manpower Bureau of the Hong Kong Government

**HKEAA** – Hong Kong Examination and Assessment Authority

**HKEdCity** – Hong Kong Education City Ltd.

**HKSAR** – Hong Kong Special Administrative Region

**ICT** – Information and Communication Technology

**IT** – Information Technology

**ITEd** – Information Technology in Education

**LAN** – Local Area Network

**WG** – Working Group on Textbooks and e-learning Resources Development of the Education Bureau





## CHAPTER

# 4

# Use of Online Education in the K–12 Sector in India

**Centre for Civil Society  
New Delhi, India**

## Introduction

India is the second most populous country on Earth, with approximately 1.2 billion citizens. Despite pressing problems such as extensive poverty and illiteracy, rapid economic development is fueling India's influence in the world.<sup>13</sup> The education system suffers from a high drop-out rate, substandard facilities, and high teacher absences. This chapter reviews the state and possibilities of digital online and blended learning technologies in India.

The objective of this study is to analyze the status of online education (for the K–12 segment) in India. The key points addressed in this study are:

- The status of the K–12 segment in India and its key characteristics
- The status of the online education market
- The key characteristics of online education in India

This study was conducted for the Atlas Online Education Initiative in partnership with the International Association for K–12 Online Learning (iNACOL). For the purpose of this study, the following definitions were used:

**K–12 segment:** Collectively children belonging to the pre-primary (ages 3 to 6), primary (ages 6 to 14), and secondary (ages 14 to 18) school segments make up the K–12 segment in India.

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<sup>13</sup> <https://www.cia.gov/library/publications/the-world-factbook/geos/in.html>

**Online learning:** Education in which instruction and content are delivered primarily via the Internet. Within India, this form of education is also referred to as e-learning. In general, the understanding is that this type of learning takes place over the Internet.

**Blended learning**<sup>14</sup>: Blended learning combines face-to-face instruction with online instruction but at potentially different points in time. Online instruction can also occur with the assistance of other educational technologies such as satellite television, mobile phones, video conferencing, and other emerging electronic media.

Blended learning models can be of the following types:

- **Reference-based learning:** Classroom learning is supplemented by computer-aided instruction across the Internet, including live or recorded lectures, online graphics, and animation.
- **Online Assessment:** Online portals that offer practice tests to students. A student can appear for the test and acquire feedback for his performance.

**Supplementary courses:** In these courses, students choose to supplement their classroom learning. These courses typically adhere to the principals in the *National Curriculum Framework, 2005*, which are:

1. Connecting knowledge to life outside the school;
2. Ensuring that learning shifts away from rote methods;
3. Enriching the curriculum so that it goes beyond textbooks;
4. Making examinations more flexible and integrating them with classroom life; and
5. Nurturing an identity informed by the democratic polity of the country.<sup>15</sup>

## Research Methodology

For the purpose of this study, the following research approach was used:

**Primary research:** Primary research was conducted as a two-step process. As the first step, government departments and private online education providers were surveyed (see References at the end of this chapter). After participation was low in the initial survey, interviews followed, either by telephone or in person.

**Secondary research:** The initial hypothesis was formed through a literature review of online education in India along with the role of online course providers. Existing research on the

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<sup>14</sup> The definition needs to be more precise in that it is not clear whether the online instruction would be teacher mediated or not. For instance, apart from face-to-face instructions when a student enrolls in online classes at his own will, it is not clear whether it would be called blended learning.

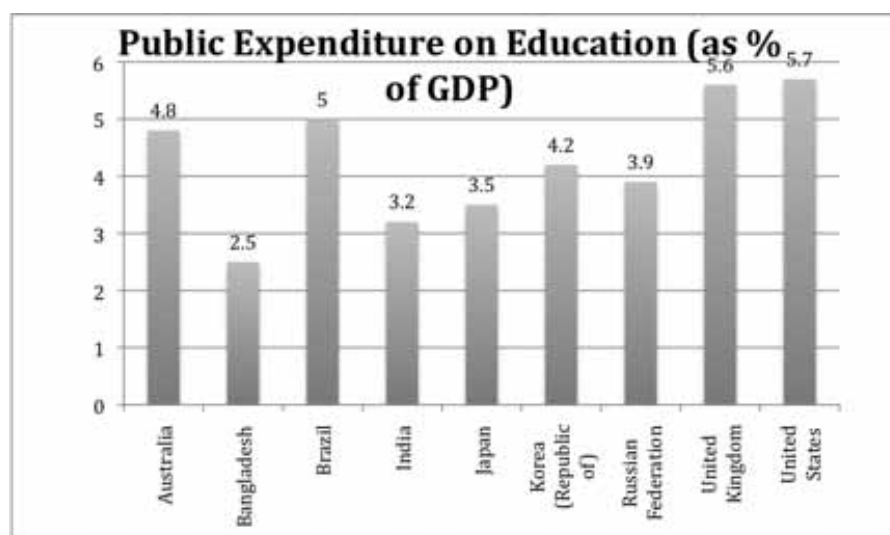
<sup>15</sup> <http://www.ncert.nic.in/rightside/links/pdf/framework/prelims.pdf>

online education space in India was accessed, where available, including that available from the World Bank and United Nations.

## Status Of K–12 Education In India

India ranks seventh among benchmark countries when comparing the public expenditure on education as a fraction of a nation's Gross Domestic Product (GDP). Using GDP as the measure, India spends 66% of the amount spent by Australia; 57% of the amount spent by the United Kingdom; and 56% of that spent in the United States. India is comparable in spending to Japan and Russia. India only outspends Bangladesh in countries benchmarked by this study, as shown in Figure 4-1. A large portion of this outlay is spent on the K–12 sector.

In India, this is evidenced by government programs such as the *Sarva Shiksha Abhiyan* (Education for All), which has intensified the move toward universalizing elementary education<sup>16</sup> and through the introduction of the Right to Education Act, by which India became one of 135 countries to make education a fundamental right<sup>17</sup> of every child.



**Figure 4-1: Public Expenditure on Education as a Percent of GDP.** This chart compares the education costs of India with countries benchmarked in the study.<sup>18</sup>

<sup>16</sup> Government of India. (2001). *Sarva Siksha Abhiyan*. Ministry of Human Resource Development.

<sup>17</sup> PTI. (2010). India joins list of 135 countries in making education a right. *The Hindu*, 2 April.

<sup>18</sup> UNESCO Institute of Statistics, 2006.

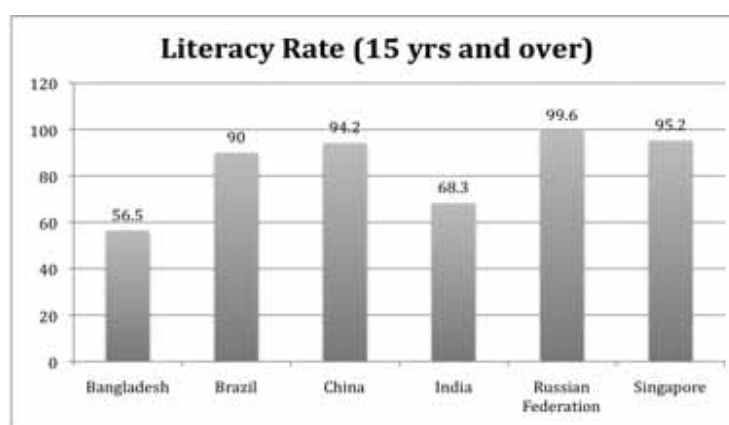


The outcomes of this focus can be seen in the fact that a majority of students are enrolled in government schools. The types of schools are defined as follows:<sup>19</sup>

- **Government schools:** These schools are operated by the central, state, or local governments. There are approximately 1 million of these schools in the country, with an enrollment of 130 million students — approximately 70% of all students.
- **Private aided schools:** These schools are operated privately but funded largely by government grants-in-aid. The government provides regulation in the functioning of these schools — especially in areas such as teacher recruitment and remuneration. It is estimated that there are 70,000 of these schools that enroll 17 million students — about 9% of all students.
- **Private unaided schools:** These schools are operated privately but without state aid. They run entirely on tuition and fees; they have virtually no government involvement in matters such as teacher recruitment. They are further divided into two types:
  - Recognized schools are those that fulfill a number of conditions to be eligible for government recognition. It is estimated that there are 175,000 recognized private unaided schools that enroll 39 million students — about 21% of all students.
  - Unrecognized schools. There are no reliable estimates for the number of unrecognized private unaided schools and students enrolled in them.

Government schools clearly dominate the educational landscape in India, followed by recognized private unaided schools.

Despite the efforts made by the government to increase education, key educational indicators show that there are significant issues in the education sector. The literacy rate remains as low as 68% (see Figure 4-2), with the mean years of schooling for children at just 4.4 years.



**Figure 4-2: The literacy rates for India and benchmarked countries for individuals of at least 15 years of age.<sup>20</sup>**

<sup>19</sup> Data of K–8 education segment is referred to as data but[?] was not available for the K–12 segment.

<sup>20</sup> Source: International Human Development Indicators, UNDP, 2010.

Studies<sup>21</sup> suggest that these poor indicators are not due to a lack of sufficient funds but rather to ineffective spending and a lack of adequate monitoring. This arises out of the key problems of public education in India.

- **High drop-out rate:** Although enrollment has increased,<sup>22</sup> the drop-out rate still remains as high as 50% for the entire elementary education system (grades 1–8). This indicates that a significant number of children exit the mainstream educational system over time after enrollment in grade I.<sup>23</sup>
- **Poor educational facilities:** The government has implemented several school construction programs. However, the current state of school facilities is clearly far from satisfactory,<sup>24</sup> with a substantial percentage of primary schools still without the most basic essentials, such as drinking water, toilets, furniture, teaching aids, and books — not to mention more advanced resources, such as fans, playgrounds, musical instruments, and computers.
- **Teacher absence:** Equally worrying perhaps is the evidence of teacher negligence in schools. First, teacher absence rates are high. On visits<sup>25</sup> to all 3,700 schools in the 20 major states of India, it was found that, on average, 25% of the teachers in government primary schools were absent from school on a given day. Second, and more disturbing, even among teachers who were present, only about half were found engaged in teaching.

Despite the negative factors that have been identified in the education system in India, there is a clear rising trend in private school enrollment. At the rural level across the country, private school enrollment increased from 16.3% in 2005 to approximately 22.6% in 2008 — an increase of about 40%. In urban India, it is reasonable to conclude that there is a more significant private school enrollment over government schools.<sup>26</sup>

The shift toward private schools is due to parental perceptions that private schools provide better education outcomes and do not face the issues documented in public schools, as identified above. This perception is also backed by statistics in learning outcomes.<sup>27</sup> In 2009, in grades 1–5, the children who could read at least a grade 1-level text was 43.6% in government schools. The corresponding figure in private schools was 52.2%, a clear indication that something different was occurring in private schools.

In addition to the move toward private schools, there is an increasing demand for supplementary classes. This is evident from the fact that 31% of the children in grade 8 of

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<sup>21</sup> Singh, B., Tirumalai, S. et. al. (2007). India Education Services Sector. Credit Suisse.

<sup>22</sup> Government of India. (2008). Analytical Tables 2007–2008, Elementary Education in India, NEUPA.

<sup>23</sup> Shah, H., Agrawal, S. (2008). Educating India, 2008, Angel Broking.

<sup>24</sup> Probe Team. (1999). Public Report on Basic Education in India. Oxford University Press.

<sup>25</sup> Kremer, et. al. (2005). Teacher Absence in India: A Snapshot. Journal of the European Economic Association.

<sup>26</sup> Primary research.

<sup>27</sup> Annual Status of Education Report (Rural)2010. Accessed on 26 April 2011 at [http://images2.asecentre.org/aserreports/ASER\\_2010\\_Report.pdf](http://images2.asecentre.org/aserreports/ASER_2010_Report.pdf).

government schools and 22% of the children in grade 8 of private schools paid for additional learning.<sup>28</sup> This is because a student may take more time in grasping concepts of one subject over others and may require additional lessons, and it is believed that supplemental education increases the learning outcomes of children.<sup>29</sup>

As a nation, Indian students are moving toward private schooling that includes the use of supplemental courses to meet their learning styles and achievement expectations. Yet, the illiteracy rate indicates that there is more work to do.

## Status of Online Education In India

New businesses are emerging within the online education space in India. It is estimated<sup>30</sup> that the online education market in India is worth about \$15 million for the K–12 segment and is pegged to grow to about \$120 million by 2012. It is assumed that this growth would be led by students attending private schools and belonging to middle class families that are seeking supplementary education. The demand for this is so extensive that, in just a short span of time, online education companies have reached out to 15 million students and 26,000 schools.

The growth of online education will be assisted by increasing broadband penetration. In 2010, the World Bank indicated that India had about 7.7 million broadband subscribers, up from about 3 million broadband subscribers in 2007. This number is projected to increase to 100 million by 2015.<sup>31</sup>

## Key Characteristics of Online Education In India

There are several key characteristics of online education in India.

- Courses are supplemental in nature. They do not supplant traditional curricula, courses, or grades. They are not offered under the prescribed academic curricula in the country; therefore, they do not offer any academic credits toward the student's education.
- The scope for student interaction is varied. In online learning courses, students can move at their pace through the content. However, interaction between the students and between the student and the teacher is limited to the time the course is being conducted online. As an example, one company provides the feature where students can interact with one another as long as they are in a virtual classroom. In

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<sup>28</sup> Annual Status of Education Report (Rural)2010. Accessed on 26 April 2011 at [http://images2.asercentre.org/aserreports/ASER\\_2010\\_Report.pdf](http://images2.asercentre.org/aserreports/ASER_2010_Report.pdf).

<sup>29</sup> Wadhwa, W. (2009). Are Private Schools Really Performing Better than Government Schools?

<sup>30</sup> Vajpayee, B., Joshi, N. (2008). Indian education sector outlook. CLSA Asia-Pacific Markets.

<sup>31</sup> Mobile Broadband Outlook–2015. PriceWaterhouseCoopers. Accessed on 28 April 2011 at [http://www.pwc.com/in/en/assets/pdfs/Publications-2010/Mobile\\_Broadband\\_Outlook\\_2015.pdf](http://www.pwc.com/in/en/assets/pdfs/Publications-2010/Mobile_Broadband_Outlook_2015.pdf).

blended learning environments, online and offline learning are integrated. While a student can interact with other students and with the teacher during the course, he does not have the option of moving at his own pace through the content. For instance, one company's classes are conducted in a classroom in the presence of a teacher and students.

- The typical customers for online education courses are individuals, such as parents or students, and institutional customers, such as public or private schools.
- There are no government regulations, specified standards, or certifications for online education in India; therefore, it is left to the private sector to develop its own standards for teaching in the medium, training and mentoring teachers, and quality control for courses and content.

While the private sector fills the needs of online students in India, a *National Policy on ICT in School Education*<sup>32</sup> was being drafted at the time of this report by the Ministry of Human Resource Development (MHRD); it is expected to cover online learning. Consultative meetings held by the MHRD with relevant stakeholders have highlighted that the current issues facing educational technology include adequate investments in infrastructure and teacher capacity. Further challenges exist in the development and delivery of quality content.

Online learning in India is further complicated by diverging company approaches to their own standards. Typically, teachers are expected to be subject matter experts with preference given to those who have master's degrees in their subject. Having a specific education degree or teaching experience over and above a subject matter graduate degree is considered to make a candidate more desirable.

Similarly, companies adopt their own approaches on training and monitoring of teachers. These approaches can be broadly classified into three categories.

1. **No Training/Monitoring:** A few course platforms allow students and teachers to upload content themselves. The software is free with no monitoring of course quality.
2. **Minimal Training/Monitoring:** Teachers participate in basic training on the use of the online platform, but companies provide little teacher oversight.
3. **Extensive Training/Monitoring:** Online tutoring companies hire tutors to teach online; the companies maintain stringent quality standards and impart extensive training to the tutors. The tutors have a short training period, typically one to three weeks, on computer usage, the basics of online training, communication skills, and familiarization with the content and methodology. The tutors are also monitored on a regular basis. One provider has a dedicated quality team that regularly samples the recordings of sessions. There are strict penalties for tutors not adhering to the

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<sup>32</sup> Government of India. (2008). National Policy in ICT in School Education. Ministry of Human Resource Development. Accessed on 28 April 2011 at [http://www.csdms.in/gesci/pdf/gesci\\_compendium2008.pdf](http://www.csdms.in/gesci/pdf/gesci_compendium2008.pdf).

company's quality standards. All tutors have monthly evaluations where they are retested to ensure that they are keeping up with the latest course.

Course development follows the same pattern as teacher professional development. Content is developed by a team of experts, including subject matter experts, instructional designers, visualizers, and technical experts. Some companies also use open educational resources. Further, since there are no standards to ensure that students will learn the content, courses can vary in quality. However, the school curriculum acts as a framework for the content and the quality of the content is determined primarily on the basis of the client requirements.

## Case Studies

### EDUSAT (Educational Satellite)

The Haryana government has launched the largest educational technology initiative in the country through the EDUSAT program, which was implemented with the help of IL&FS Education and Technology Services. Under this program, educational content is being broadcast through five channels to cover the entire gamut of education, including Primary Education, Secondary Education (two channels), and Colleges and Technical Institutions. In the first phase, Satellite Interactive Terminals (SITs) were made functional in 261 schools.

The resource people were selected from the Haryana Education Department and trained on technology-facilitated education. The script for individual topics prepared by these resource people was evaluated by an Internal Evaluator of the Department and then by an external evaluator from outside the Department.

Initially, only live lectures were being broadcast; however, recordings were made so that quality material will be available for subsequent years. Leading private organizations were engaged to develop content for the programs of entrance examinations, training on soft skills, and training of teachers in the use of technology in education.

### ViCTERS (Virtual Classroom Technology on EDUSAT for Rural Schools)

The ViCTERS program has been implemented by the Government of Kerala. The objective was to empower the teachers to use modern technology for teaching in class through the use of computers and other technologies; in other words, to promote blended learning.

The project has been implemented in a decentralized manner with schools directed to set up computer labs on their own. Kerala high schools now have over 35,000 computers (numbers varying from 5 to 65 per school) through this model of decentralized implementation, while it was only less than 2,000 computers in the year 2002.

Nearly 54,000 high school teachers have been trained for the use of this technology. It has enabled them to obtain information on teaching, grading, and implementation of the system from the expert faculty of SCERT (State Council Educational Research and Training) in Kerala.

## Gyanpedia

Gyanpedia.in is an interactive portal for collating, organizing, and circulating contents generated in schools in India through an open web-based platform. The initiative with support from the Digital Empowerment Foundation (DEF) aims to give a boost to nationwide e-learning and e-education efforts. It has online presence of over 50,000 students and covers 10 states.

## Summary

Under the crush of poverty, high drop-out rates, substandard facilities, and teacher indifference, India continues to push its economic potential to the world stage. With parents understanding the need for education, students are moving to private schools and supplemental digital courses to ensure their learning. With no governmental oversight, companies are left to develop their own standards for digital learning.





## CHAPTER

# 5

## Online Learning in Public Education: Singapore

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Singapore has adopted a proactive approach to ensure that its students are well prepared to thrive in an online and connected world. Beginning with some of its youngest students, Singapore blends online learning in the classroom. This practice requires that teachers leverage online tools and resources to enhance classroom learning. The main purpose for this blended learning approach is to prepare its students for a collaborative and technologically savvy society.

The Ministry of Education (MOE) and the Infocomm Development Authority (IDA) have put into place master plans which articulate the strategic vision, strategies, and targets for online learning across the nation. However, exclusively distance education courses are rarely offered.

Education Technology Officers employed by the MOE support clusters of schools in their use of technology for learning. Schools also have Information and Communications Technology (ICT) personnel to help teachers and students with technology and technology training.

Online teaching skills are required as part of the professional development program for educators. Courses are provided by the National Institute of Education or professional development organizations. However, there is “no prescribed set of qualifications or training” that a teacher must engage in to teach online.



## Background

Singapore is a small and well connected city-state. It has a population of just over 5 million people with a real per capita GDP of around \$42,000 per annum. The Internet — accessed through both wired and wireless means — is ubiquitous. As of 2010, 84% of Singaporean households have one or more computers and 80% have access to broadband Internet.

Educational institutions have been experimenting with and deploying Internet-based learning platforms since the mid-1990s. More than one in three users aged 7–14 use it for educational purposes. This figure drops to around one in five for the 15–24 age group, further to 5% for the 25–34 and 35–49 age groups, and then to 1% for those aged 50 and above.

In Singapore, distance learning is not a priority in itself. Rather, online learning is seen as a glue that supports classroom learning and discovery. Singapore prefers a blended approach that involves classroom interaction combined with online activities. Many schools are experimenting with the one computer to one student model. It is not uncommon to find Singapore students working away on their laptops in public libraries and cafes.

## Teachers

The National Institute of Education (NIE), a part of the Nanyang Technological University, is the primary institution that trains teachers for the public school education system in Singapore. The Ministry of Education (MOE) also has an Education Technology Division that advises primary schools, secondary schools, and junior colleges (i.e., K–12) on the use of technology in their educational programs. The MOE appoints Education Technology Officers for clusters of schools. These officers act as consultants for the broader technology in learning efforts for the schools. The schools also have in-house ICT (Information and Communications Technology) departments that run courses for teachers and students.

Tertiary institutions like universities, polytechnics, and institutes of technical education have their own professional development units which oversee online and blended learning training for the teachers. These include:

- Centre for Development of Teaching and Learning at the National University of Singapore
- Center for Excellence in Learning and Teaching at the Nanyang Technological University
- Teaching and Learning Centre at Ngee Ann Polytechnic
- Centre for Educational Development at Republic Polytechnic
- Department of Educational Development at Singapore Polytechnic

Increasingly, educators are forming online and offline interest groups and communities that organize informal peer-learning events. The Ministry of Education's annual Excellence Festival is an event that serves as a platform for sharing online learning techniques.

## Requirements for Online Teaching

Currently in Singapore there are no requirements or certifications needed to teach online or in a blended learning environment. However, online facilitation skills form a part of an educator's professional development, either at the NIE or the various professional development centers. These organizations run frequent workshops on tools such as search engines, Google collaboration suite, and learning management systems. Beyond tools, these courses dwell on online facilitation techniques and rubrics for online activities. Schools also encourage teachers to participate in specialty courses offered by universities outside of Singapore.

Generally, educators are ready to teach online when they are comfortable with the technology (both the software systems and the hardware) and are able to keep students engaged.

In blended learning environments, there are increasing numbers of schools that are offering "one-to-one learning environments." This means that every student has access to a notebook computer and wireless Internet in the class. In such cases, the technology is employed in conjunction with regular classroom teaching. For example, a geography teacher may ask students to participate in a mapping activity using Google Maps. This activity may form the online component that students participate in, whether they are in class or outside the classroom. A group of nursing students may use a wiki system to collate disease data as a part of their project. The teacher may award credits based on the students' participation in the wiki.

Within this environment, teachers are trained to be able to use the technology tools and to make sure that the learning objectives are met via a set of rubrics. Often, teachers are free to choose among online activities to further engage students. Teachers are usually motivated to administer online activities when they have experience with the technology and the online facilitation.

The "more-qualified educators" may be ones that have undergone training on various aspects of facilitating activities and have more experience facilitating such sessions. Information Technology (IT) vendors have some relevant programs. Apple, for instance, has a "Distinguished Educator" program wherein teachers can work through workshop sessions, some of which deal with online facilitation.

## Online Content

The main purpose of online and blended learning programs in Singapore is to prepare students for a collaborative and technologically savvy society.

Online programs are mainly used to complement classroom learning. In technical subjects, their aim is mainly to simulate environments where it might be difficult to take students, for example, scientific simulations, virtual worlds for real-world simulation, and so on. Mobile learning is increasingly being used in augmenting reality, for instance, students exploring a forested zone and getting information about the plants via geo-tagging.

Pure online courses are seen as contingency measures for business continuity in cases where schools may be closed due to disasters or disease outbreaks. Many schools used online means during the SARS outbreak in 2003.

Online content is developed by any number of players, including teachers, students, private vendors, and government entities.

- Teachers develop simple online content, which may consist of online presentations, narrated presentations, online videos, and mashups.
- Students are increasingly taking the lead in building their own learning content, thanks to the availability of easy-to-use and inexpensive applications and devices. Currently, this content is mainly in the form of online videos, collaborative documents, or simple multimedia content.
- Higher-learning institutes have dedicated in-house media development centers or teams.
- Private vendors are usually contracted for developing more-complex courseware and simulations.
- Government, such as the MOE, runs the Edumall portal that aggregates educational content. The ministry curates content and organizes an annual Excellence Festival where schools demonstrate their new developments often along with their vendors.

The MOE's Education Technology Division appoints Education Technology Officers who also consult with teachers on the technical details of content development.

There is currently no accrediting agency which oversees online or blended learning.

## Open Educational Resources (OER)

Teachers and students make extensive use of the search engines, Wikipedia, YouTube, and other open educational resources, such as Google Maps and podcasts. A number of factors encourage the use of OER, including good network connectivity. Additionally, as English is the main language of instruction, the Singapore education community can utilize the vast majority of Internet resources in English.

A positive attitude toward using online resources is also an element encouraging the use of open educational resources. For example, teachers encourage students to fact-check sites and conduct background research supporting the validity of Internet-based sources and information.

Furthermore, several institutions are active in promoting the use of content licenses under Creative Commons, and many schools and educational institutions use Moodle, the open-source learning management system.

## Acquisition of Content

In most cases, a team of the subject matter expert (the educator) and/or a technical person submits a proposal to acquire the online content. The Education Technology Officer may also advise the school in technical matters. When sophisticated or complex content is required, the services of an instructional designer consultant may be obtained. Depending on the budget, the acquisition may be approved by the schools themselves.

Individual schools usually fund their own programs; however, the MOE is usually the driver for larger programs that impact multiple schools. Also, the IDA cofunds pilot projects aimed at promoting transformative educational technologies in the education sector.

## Quality Assurance

Typically, to acquire online content, educators justify the need by providing examples of similar institutions that are using the content; they may also provide online reviews and experiences from other educators who are using the content. If the cost is acceptable to the approving body, a pilot program may be launched where a small group of students will try out the content. On a broader level, schools use a self-assessment tool called “Benchmarking Your IT Practices for Excellence in Schools,” or BY(i)TES, to track the level of information technology in their educational activities.

Data and feedback are collected from students at the end of the pilot. Subsequently, a review, or learning outcomes evaluation, is carried out. The educators who initiated the pilot may even present their findings at regional conferences. A large-scale roll-out is then considered, based on the experience of the pilot project.

It is also common practice to survey students at the completion of an online course. Proactive educators watch for emerging technologies and keep improving the course incrementally. Most internal and external teaching awards, as well as teachers’ annual reviews, take into consideration the effort that educators put into their online or blended learning initiatives.

## Online courses

Students typically move through courses at their own pace, and most courseware is designed to accommodate this process. Students are also encouraged to use bookmarking and online archival tools to save content that is useful to them. It is important to note that the online learning component is part of an overall, highly structured syllabus and educational curriculum.

Most courses offered via a learning management system (LMS) have discussion boards, wikis, and blogs. The frequency of interaction varies from course to course, with some requiring intense group exchanges while others involve minimal one-way interactions. In some cases, students are graded based on their participation.

Teachers participate in online courses in a number of ways. For instance, it is not unusual to see teachers curate and post content on the LMS. They may facilitate discussions and other online activities. They monitor the online participation and may intervene if they find a student falling behind. Some teachers may also be involved in creating grading rubrics for online activities.

Students are awarded credit for participating in online activities. In recent years, educators have been discussing and creating grading rubrics. However, there are currently no set standards. This may be due in part to the diversity of experiments.

Students with special needs are served and supported in a number of ways. For example, there are specialized educators and funding to support these students. There are also training programs that are geared to help public school teachers work with and support students with special needs. Additionally, most learning management systems support some level of access for students with special needs and will work with assistive tools.

## Policy

The Ministry of Education (MOE) and the Infocomm Development Authority (IDA), the national IT promotion agency, shape the direction of online learning in Singapore. The vision, strategies, and targets are articulated in their respective masterplans.

Support for the use of technology in learning comes from the MOE's Masterplan 3 (Masterplans 1 and 2 pushed IT infrastructure development). Masterplan 3 was announced in 2009 and will run through 2014. The emphasis is on encouraging students to learn skills for the knowledge economy. The four key goals of the plan are:

- Strengthening competencies for self-directed learning
- Tailoring learning experiences according to the way that each student learns best
- Encouraging students to go deeper and to advance their learning
- Providing students the opportunity to learn anywhere, anytime

The baseline ICT standards are a set of ICT skill competencies that perhaps are the best evidence that Singapore sees IT skills not in isolation but as a set of tools to help prepare students for the connected world.

There are four stages of skills that target school years and recommend activities. Table 5-1 depicts the stages for online ICT skills competencies.

Stages	Target School Years	Standard Skills
Stage 1	Primary years 1 through 3	Navigate GUI, use application software, use digital resources, create a text document, create a presentation
Stage 2	Primary years 4 through 6	Search for information online, add multimedia to presentations, create spreadsheets, collect data
Stage 3	Secondary years 1 through 2	Produce multimedia, manage and process data, collaborate online
Stage 4	Secondary years 3 through 5 and pre-university	Use of simulations, deeper analysis, publish information

**Table 5-1. Stages for Online ICT Skill Competencies**

The IDA published iN2015, which articulates two goals specific to education to be achieved by 2015. The first goal is to be number one in the world in harnessing infocomm to add value to the economy and society. The second goal calls for Singapore to achieve 100% computer ownership in homes with school-going children.

## Authorization of Online and Blended Learning

Schools have a good degree of independence when they implement their online and blended learning initiatives. They use the MOE baseline ICT standards as a scaffold for their online and blended learning initiatives.

Schools organize their own training programs with internal or external trainers, and they often collaborate with each other and share best practices.

The technical guidelines for distributing online learning is set by the Information Technology Standards Committee of the Singapore Standards Council. This group discusses the implementation of standards and specifications such as Sharable Content Object Reference Model (SCORM) in the learning management systems used in the schools.

## Leadership

Leaders of online learning are usually teachers who have been integrating online activities with some success. These educators are encouraged to present their experiences at conferences and other venues.

One of the key questions asked in performance reviews of teachers is how well they are integrating online activities. Some institutions have an annual online learning review or survey that is used to find interesting approaches taken by the teachers.

Online and blended learning activities are integrated with regular classroom activities. In this environment, the main factors that encourage teachers to take up leadership roles include familiarity with technology and a desire to make the class more interactive. It helps also that teachers' online efforts are recognized and play a role in their career advancement.

## Conclusion

Singapore has taken a proactive approach toward infusing education with online resources and content. The important role technology plays in a connected world is clear, and Singapore has taken steps to ensure that its students will be well prepared to thrive in a high-tech world.

There are notable trends in Singapore which suggest a continuing path of innovation in the use of online technologies for education. For instance, there is a trend moving toward one-to-one computer-to-student ratios. Another trend, of spotlighting the innovative uses of communities of practice, is occurring among teachers who are forming informal learning groups with peers to learn technology applications for education. Finally, the Masterplan 3 calls for students to acquire the skills necessary for a knowledge economy. This includes a) a move toward self-directed learning, b) implementing individualized learning, c) developing deeper understanding of content, and d) providing the opportunity to learn anywhere, anytime.

Although Singapore has not put into place the advanced quality assurance measures for teaching online or for developing and implementing online content in a more regulated or systemized manner, it is making strides. The MOE's Masterplan 3 and the baseline ICT skill competencies seem to be valid steps toward ensuring effective online teaching and learning.





# European Countries



## CHAPTER

# 6

## Online Learning for Turkish Public Education (Ages 5–18)

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### Country Overview

Turkey is a peninsula located in southeastern Europe and southwestern Asia and has a unique location for being a geographical bridge linking Asia to Europe. The surface area is 769,604 km (excluding lakes and dams) and is divided into 81 administrative provinces and 7 geographical regions (TurkStat, 2010a). The country has borders with Armenia, Azerbaijan, Bulgaria, Georgia, Greece, Iran, Iraq, and Syria. The Black Sea lies on the northern coast, while the Aegean Sea lies on the west coast and the Mediterranean Sea on the south coast. The capital city is Ankara, which is located in the northwest center of the country (see Figure 6-1).



**Figure 6-1: Map of Turkey (Source: World Factbook, 2011)**

The economy is gradually driven by industry and service sectors, as well as the traditional agriculture, and is based on an open economy system. The per capita gross value added (GVA) as of 2006 is \$ 6,684. The major enterprises include wholesale and retail trade, manufacturing, transport, construction, storage, communication, and mining (TurkStat, 2010a).

The country has a large population of over 73 million. It also has a high percentage of young population. As of population statistics in December 31, 2009, 51.2 % of the total population was under the age of 30. Further, 34.1% of the population is under 20, and the median age was found to be 29.2. More than 75% of the total population resides in provinces and district centers. Istanbul is the most heavily populated province with almost 13 million (TurkStat, 2010b).

## A General Perspective on the Turkish Education System

The organization of the Turkish education system is constituted and run on the basis of the Constitution of the Turkish Republic, laws regulating education and instruction, government programs, development plans, and national education councils. The basic characteristics of the system are defined as democratic, modern, scientific secular and coeducational (Ministry of National Education [MoNE], 2000).

The overall structure of the education system is determined by the National Education Basic Act No. 1739 that entered into force in 1973. According to this law, two main types constitute the education system: “formal education” and “non-formal education.” Formal education consists of the regular education within a school for individuals in a certain age group and at the same level and covers pre-primary, primary, secondary, and higher-education institutions (see Table 1). Non-formal education covers citizens who have never entered the formal education system or are at any level or have left at that level, and which may accompany formal education or be independent (MoNE, 2010). The formal education levels are introduced below.

**Pre-Primary Education:** Pre-primary education consists of a non-compulsory education for children between the ages of 3 and 5 who are not eligible for primary education. The main pre-primary education institutions are established as independent infant schools, as nursery classes within a primary education school, or as practice classes affiliated with other related education institutions (MoNE, 2000). In the academic year 2009–2010, there were 980,654 students and 14,513 teachers in 3,877 early childhood institutions. There were also 22,225 public and 579 private nursery classes with a total of 754,841 students and 28,885 teachers (MoNE, 2010).

**Primary Education:** Primary education covers children between the ages of 6 and 14 and is compulsory for both boys and girls. It consists of eight years of education and is free at state schools. For individuals who need special education, there are special education institutions and/or primary education institutions. As of the 2009–2010 statistics, there were 10,916,643

students and 485,677 teachers in 33,310 primary education institutions. There is also an open primary school with 389,948 students.

**Secondary Education:** Secondary education is non-compulsory and covers general, vocational, and technical high schools with at least four years of education. In the 2009–2010 academic year, 4,240,139 students (approximately 57% were general secondary education students and 43% vocational and technical education students) were educated and 206,862 teachers were employed in 8,913 secondary schools. There is an open education institution with two levels: open secondary school and open vocational technical school. There were 421,646 students in open secondary schools and 179,392 students in open vocational and technical schools.

**Higher Education:** Higher education is available to all citizens who have graduated from secondary education; it is directed by the Council of Higher Education (CoHE). The Student Selection and Placement Center (ÖSYM) administer a nationwide examination (i.e., the Placement Examination for Bachelor's [LYS]) for the graduates of secondary school for selection to higher-education institutions. In the 2009–2010 academic year, the total number of public and private universities was 163. In these institutions, 100,504 academic staff taught approximately 2,924,281 students. The main language is Turkish. There are several universities using English, French, or German with one preparatory year. Although the general format of education is face-to-face, there are distance and online education programs. The higher education system is compatible with the Bologna three-cycle system (CoHE, 2010a).

The MoNE statistics for the 2009–2010 academic year show that there were over 23 million students, 800 thousand teachers, and 59 thousand schools. Table 6-1 presents a detailed overview of these statistics. Most of the schools are state owned, but the private sector can establish schools at all levels. The text books are also provided free of charge by the government in the state-owned primary schools.

Level of Education	Schools / Institutions	Number of Students	Number of Teachers	Number of Class-rooms
<b>Total of formal education</b>	<b>46,100</b>	<b>16,137,436</b>	<b>707,052</b>	<b>488,915</b>
Public	42,007	14,688,342	655,517	450,715
Private	4,091	458,108	50,853	38,200
Open education	2	990,986	–	–
<b>Pre-primary education</b>	<b>3,877</b>	<b>980,654</b>	<b>14,513</b>	<b>45,703</b>
<b>Primary education</b>	<b>33,310</b>	<b>10,916,643</b>	<b>485,677</b>	<b>332,902</b>
Public	32,430	10,274,728	458,046	314,950
Private	879	251,967	27,631	17,952
Open education	1	389,948	–	–
<b>Secondary education</b>	<b>8,913</b>	<b>4,240,139</b>	<b>206,862</b>	<b>110,310</b>
General Secondary Education	4,067	2,420,691	111,896	65,314
Public	3,357	1,882,426	95,784	57,192
Private	709	116,619	16,112	8,122
Open education	1	421,646	–	–
Vocational Technical Sec. Educ.	4,846	1,819,448	94,966	44,996
Public	4,824	1,638,453	94,649	44,847
Private	22	1,603	317	149
Open education	–	179,392	–	–
<b>Total of Non-formal education**</b>	<b>13,439</b>	<b>7,062,429</b>	<b>92,976</b>	<b>83,708</b>
Public	2,165	3,856,465	10,602	5,721
Private	11,274	3,205,964	82,374	77,987
<b>General TOTAL</b>	<b>59,539</b>	<b>23,199,865</b>	<b>800,028</b>	<b>572,623</b>
<b>Higher Education</b>	<b>163***</b>	<b>2,924,281</b> ****	<b>100,504****</b>	

**Table 6-1: Education Levels in the Academic Year 2009–2010\***

(\*) National Education Statistics, Formal Education 2009–2010

(\*\*) The figures on the number of trainees in non-formal education institutions refer to the end of 2008–2009.

(\*\*\*) CoHE(2010) statistics for 2009–2010

(\*\*\*\*) CoHE (2010) statistics for 2008–2009

The Turkish MoNE and the CoHE are the national authorities for the organization and operation of all levels of education. MoNE is responsible for the planning, programming, executing, monitoring, and controlling of education and training services targeted at teachers and students in the educational institutions, excluding higher education (MoNE, 2011). CoHE is responsible for the planning, coordination, and supervision of higher education and its institutions and cooperates with MoNE (CoHE, 2010a). The structure of the national education system is presented in Figure 6-2.

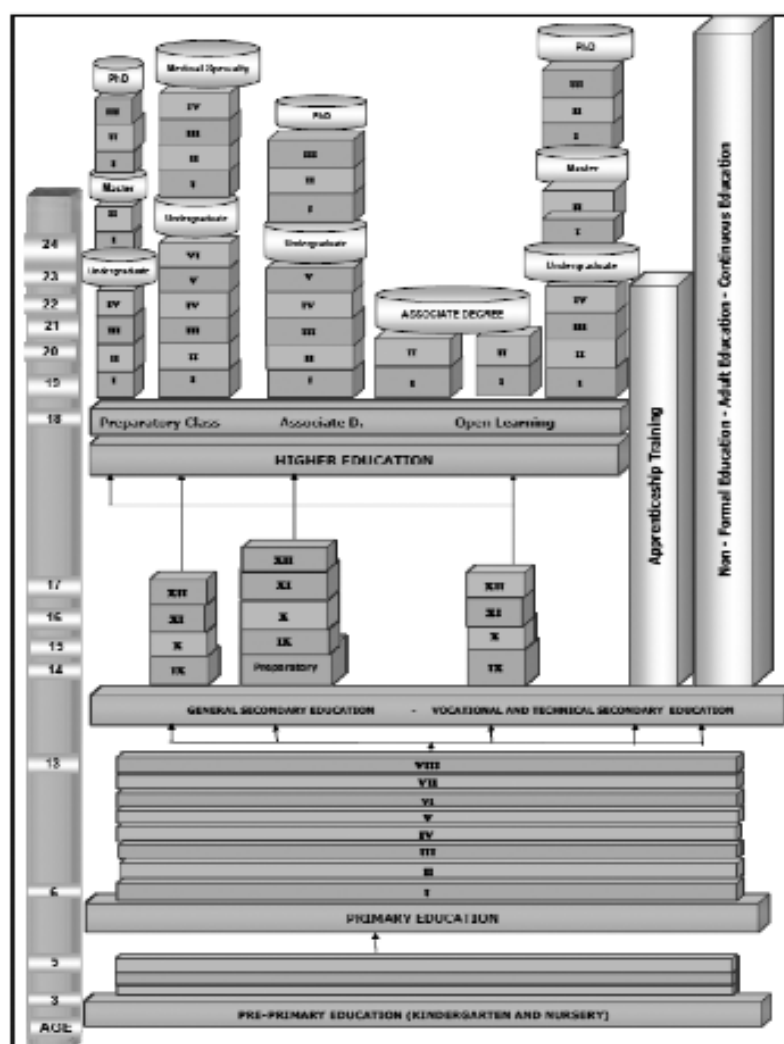


Figure 6-2: Turkish National Education System (MoNE, 2010)

## A General Look at Online Learning in Turkey

Turkey is a developing nation with a fast developing information and communications technology (ICT) sector that has a growing demand for information technology (IT) services and infrastructure (Investment Support and Promotion Agency, 2010). According to the 2010 digital economy rankings report on e-readiness by Economist Intelligence Unit (EIU), Turkey is ranked 43<sup>rd</sup> among 70 countries with a score of 5.24 out of 10 (EIU, 2010). Table 6-2 portrays the scores in different categories. The business environment has the highest score among the categories. This finding is consistent with other studies that found the dominant use of e-learning in business and training sectors (e.g., Hancer, 2010). The second highest category, social and cultural environment, considers educational level, Internet literacy, degree of entrepreneurship, technical skills of workforce, and degree of innovation. This can be a promising yet inadequate indicator for the e-readiness of the country.

**Table 6-2: Digital Economy Rankings Report on E-readiness (Source: EIU, 2010)**

	Category Weight (%)	Score
<b>Overall Score</b>	<b>100</b>	<b>5.24</b>
Connectivity	20	4.20
Business environment	15	6.11
Social and cultural environment	15	5.80
Legal environment	10	5.45
Government policy and vision	15	5.50
Consumer and business adoption	25	4.98

Turkey has low fixed-line, Internet, and broadband penetration rates compared to its European peers (Investment Support and Promotion Agency, 2010). According to the recent report of Turkish Economy Politics Research Institution (TEPAV), the country has the highest cost of Internet access (\$2.39 for lowest and \$76.11 for highest megabyte/second) among the Organization for Economic Co-operation and Development (OECD) countries. Despite these facts, the country profile has an increasing trend in the usage of computers and the Internet. Based on the population aged 16–74, computer usage in 2010 was 43.2% of the population, up from only 17.7% in 2005 (see Table 6-3). Internet usage has a similar growth with 41.6% in 2010, up from 13.9% in 2005. The urban areas had significantly higher rates than rural areas. As of 2010, the rate of computer usage for urban residents was 50.6%, while the rate for rural residents was 25.6%. The rate of Internet users for urban areas was 49.2%, while the rate for rural areas was only 23.7% (TurkStat, 2010a).

**Table 6-3: Individual Use Rates of Computer and Internet (Source: TurkStat, 2010a)**

	Computer	Internet
<b>Turkey</b>	<b>43.2</b>	<b>41.6</b>
Urban	50.6	49.2
Rural	25.6	23.7

The computer and Internet use by age groups survey in 2010 revealed that almost 65% of the people aged 16–24 use the Internet (TurkStat, 2010a). Another survey done with 524 students aged 9–16 from three of the larger provinces (i.e., Ankara, Izmir, and Istanbul) showed that 70% of students use the Internet at least once a day (GüvenliWeb, 2011). Other results of this survey with significance to readers are listed (GüvenliWeb, 2011, p. 6):

- As the age increases, the use of the Internet increases as well.
- Male students use the Internet more frequently than female students.
- Students whose parents have the highest income use the Internet more frequently.
- Secondary school students use the Internet more than primary school students.

The survey also revealed that almost 65% of the people aged 16–24 use the Internet (TurkStat, 2010a). This rate is considered to be higher for younger ages. When the 16,137,436 students in formal education and 7,062,429 students in non-formal education are considered, e-learning is considered a great potential to be used in both formal and non-formal learning environments.

The 2010 European Union (EU) Kids Online project, conducted with students aged 9–16, revealed that the average year when children first used the Internet was 10 years old (Livingstone, Haddon, Görzig, & Ólafsson, 2010). The survey also indicated that 31% of students used the Internet every day or almost every day, 54% once or twice a week, 11% once or twice a month, and 4% less often than once a month. The rate of Internet use at home was low among Internet-using children — only 48% — which showed that these students used the Internet at school, Internet cafés (which are very commonly used public places), or elsewhere (e.g., a friend’s or relative’s house).

In primary and secondary curriculum, ICT as a course is an elective with one face-to-face-hour a week. This course primarily aims to help students become computer literate and includes the subjects of basic computer skills and commonly used computer applications (i.e., word processors and spreadsheets). The Project Coordination Center of MoNE indicates that within the Education Framework Project Phase II (by European Investment Bank), ICT classrooms are to be built in 3,770 schools, with renewals of current ICT classrooms (over 20,000) until the end of the second quarter of 2011 (Project Coordination Center, 2011). The



use of ICT has also taken priority in most private schools and institutions, with a number of e-learning programs or practices, and there are online interactive programs from several private institutions. The Fono<sup>33</sup> open education institute for language learning and Ugur TV<sup>34</sup> interactive learning platform are examples.

In public education, the initiation of open public schools can be considered a great milestone for e-learning. Open primary schools are part of the eight years of compulsory primary education program of MoNE and were initiated in the 1998–1999 academic year. The aim of open primary schools is to offer distance learning opportunities to individuals who were not otherwise able to complete their primary education. With this aim, these schools enable increased education levels and improve the vocational and economic status of those individuals (Open Primary School, 2011). Open secondary schools aim to provide individuals who hold five-year primary education certificates but have not had the chance to continue in secondary education with opportunities to complete their eight-year primary education via advanced information and communication technologies (Open Secondary School, 2011). The basic technologies to be used in the program were identified as television and radio programs, print books, CDs, and Internet facilities. The e-learning facilities are rapidly growing with Internet/TV, online, or radio broadcasts that present instructional programs on courses. There are also other forms of free online content (i.e., e-books, tests, etc.). These schools educate people from all provinces of the country and citizens living abroad (i.e., Western Europe, Mekke, Medine, Riyad, Trablus). In the demo video, the main motto of the schools is “Be open to education, be part of open education” (Open Secondary School, 2011).

## Teacher Professional Development

### Who trains teachers to teach online?

The pre-service teacher education is organized and managed by the coordination of CoHE and MoNE. ICT integration is given special emphasis in teacher education programs with a variety of action plans and regulations so that prospective teachers are equipped with the necessary ICT knowledge and skills. In parallel to the Bologna process, the framework on the competencies for the undergraduate programs anticipates graduates who are proficient in using ICT tools with at least an ECDL (European Computer Driving License) level (CoHE, 2010b). In the pre-service teacher education programs, there are two basic ICT courses: basic computer literacy and instructional technologies and material development. The basic computer literacy courses are given in two semesters as “Computer I” and “Computer II” courses. As of 2010, there was also an undergraduate degree program (i.e., Computer Education and Instructional Technologies) in 39 public universities and 6 private or foundation schools, and this program offers courses related to online and blended learning. The graduates of this program generally work as computer teachers or ICT coordinators, who help the teachers in their schools to integrate ICT into their courses. These teachers can

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<sup>33</sup> <http://www.fono.com.tr/>

<sup>34</sup> <http://www3.ugur.tv/tanitim>

be considered as change agents in their schools in terms of using ICT and helping others to use it. There are also distance education units or instructional technology offices in several universities that offer support to instructors in using ICT in their courses.

### What are the requirements for teaching online? What are the requirements for teaching in a blended environment?

There are no predefined establishments or requirements for teaching online or in a blended environment. Teachers need to attend their face-to-face classes; therefore, when teachers aim to use the online environment for courses, blended courses seem to be relevant in the context. The use of computers is usually done during class hours, and there are teachers who assign online tasks for their students. Several online portals have been designed for primary and secondary education by private institutions, which can be used by teachers and students free of charge. With assigned passwords, teachers can use these online programs (e.g., tutorials, drills, games, etc.) in their courses.

### How are online teachers monitored and determined to be “highly qualified”? Are there specific skill sets that are needed in online teaching that need to be developed in order to be considered “highly qualified”?

MoNE is currently developing proficiencies and skill sets for online teaching; however, no real implementation exists as yet for controlling or regulating the online teaching. The proficiencies and skill sets are given importance in terms of basic ICT usage but no special space is given to e-learning in current regulations. The authorities stated that they are currently working on related establishments and regulations.

## Online Content and Online Courses

### Who develops online content?

MoNE regulates the development of course materials. General Directorate of Educational Technologies (EGITEK) is the responsible institution in MoNE for ICT organization and implementation. Established in 1998, EGITEK is a central unit of the Ministry for coordinating facilities including planning, development, implementation, and evaluation in the technology integration process. It also enhances these facilities among open education and tertiary education for smooth delivery (EGITEK, 2010). The online course materials developed by EGITEK and placed on the Ministry’s website include an educational portal — designed for teachers, students, parents, and school administrators — and different projects such as FATİH (a new Ministry project described below), Internet/TV, and Intel learn. Below are the current projects and major initiatives of the Ministry on e-learning (EGITEK, 2011a).

- **Access to Internet:** The major aim of this project was to enable Internet access to K–12 schools for accessing, using, and sharing information via appropriate band connections (ADSL and Turksat satellite). The Ministry has reported that 100% of all high schools and 94% of all K–8 schools have Internet access as of the first half of 2011 (MoNE Access to Internet Project, 2011).
- **E-learning Portal:** An e-learning portal was constructed for students, teachers, parents, and administrators. It contains learning objects that are created as e-learning content modules supporting the curriculum. Students and parents log in to the system via students' ID numbers and school numbers, whereas teachers and administrators log in via their MEBBIS passwords, which is an online system designed by the Ministry. There are approximately 1,700 learning objects available on the portal. The content of this portal will be transferred to the new platform Egitim Bilisim Agi (EBA).
- **Egitim Bilisim Agi (EBA, Education-ICT Network):** This is an extensive web project for educational purposes within the framework of the FATİH project (see below). It aims to systematically enhance and disseminate the ICT use in education via dynamic web tools and emerging technologies and envisions covering a wide variety of resources. The main tools planned in this project include a viable search engine, electronic encyclopedia, e-courses, e-books, Web TV, Web radio, a sharing platform for educational news and scientific and research projects, a school informatics system, a questions and answers site, and a game platform. The authorities are grateful for this project which enables opportunities with an open, sharing, and flexible e-learning platform. The Turkish version of the demo video is available at <http://eba.meb.gov.tr/video/index.html>.
- **Education for Future:** With this project, a special group of teachers (formators) who are trained on ICT literacy will work with the teachers in their schools. The main aim of this project was to help 50,000 teachers become ICT literate in a three-year period.
- **Kursiyer.net:** This project is offered as an e-learning model that provides users with online training on ICT. The word "kursiyer" is the Turkish term for "trainee." There are online presentations with high resolution on topics such as Word 2003–2007, Excel 2003–2007, Adobe Photoshop, Swish Max, and 3D Max. The target number for these online presentations is 5,000 different topics, which are open source and therefore require no user names or passwords (KursiyerNet, 2011).
- **Intel Learn:** This project is also named Education for Future with two parts: one for teachers and one for students. The main aim of the project is to increase the educational quality, support students with ICT facilities to use in their classes, and help teachers to integrate ICT into their courses.

- ACER-EUN Netbook Classes: This is the pilot part of the EU project named Acer-European Schoolnet with six countries (Turkey, Italy, France, Germany, Spain, and England). Forty classes in 27 schools are included in the project, with more than 100 teachers and almost 2,000 students using netbooks in their courses in the 2010–2011 academic year (MoNE Istanbul, 2010).
- FATİH: In October 2010, the Ministry announced the new project FATİH, which stands for “increasing the opportunities and improving technology act.” This is a three-year project that aims to integrate the Ministry’s current ICT integration efforts and establish new ones. The first year will include secondary schools, the second year primary school 6–8 levels, and last year K–6 levels. There are five major components of the project: equipping schools with the necessary infrastructure (i.e., hardware and software); developing and managing e-content; maintaining effective use of ICT in classes; offering in-service training for teachers; and maintaining a secure, viable, manageable, and measurable ICT integration process. The Ministry of Transport and Communications supports the project financially.

In the development of online educational content, EGİTEK and the Board of Education and Discipline (TTKB) work cooperatively on established criteria. For open primary and secondary education, the materials are again developed by the Ministry. Expert groups work collaboratively on the development of online content. The authorities of the Ministry have identified the needs in the newly established curriculum and of the schools, in terms of supporting instruction, and have researched the current practices of other countries for the development of online content. However, there has been difficulty in establishing quality assurance.

Other online content developed by private institutions and approved by the Ministry to be used in schools include Morpa Kampus, Okulistik, Vitamin, and DigiProtein. The content in these platforms is mostly donated to schools by giving the teachers and students passwords to grade-appropriate content.

## Are open educational resources (OER) used?

Online resources are supplied on the Ministry website. For example, Kursiyer.net offers instructional materials on the use of computer application programs such as Word 2003–2007, Excel 2003–2007, Adobe Photoshop, Swish Max, and 3D Max. There are also learning objects (i.e., simulations, games, documents, etc.) and video or audio. Teachers are free to use these resources or any other online instructional pages in their courses. In open primary and secondary schools, there are online videos and documents that are accessible to everyone. When the authorities were asked, they mostly mentioned the new EBA project that aims to offer a variety of open education resources to teachers and students.

## Who purchases content?

Content is mainly developed within the Ministry, but schools are free to purchase and use content from the market approved by the Ministry (and by TTKB).

## How is online content approved or quality assured? Who determines the quality of the online content?

Online content is approved by TTKB and EGITEK. The four major criteria used to evaluate the e-content are educational aspects, curricular aspects, instructional technology aspects, and special aspects on the digital format.

The educational aspects criteria require appropriateness for:

- being used in school environments
- objectives and educational strategies
- one face-to-face course hour and format
- prior knowledge of students
- saving time compared to other strategies
- instructional guidance

The curricular aspects criteria require appropriateness for:

- the cognitive, physical, social, and psychosocial levels of students
- easy understanding of content
- critical thinking and productivity of students
- school programs

The instructional technology aspects criteria require that learning objects:

- have no error messages
- work with minimum teacher guidance
- have standards for techniques regarding Internet access and download
- be scientifically valid, adequate, updated, ethical, and unbiased
- be supportive to school programs
- be appropriate to student developmental levels in terms of visual aspects (i.e., there must be color matches)

The criteria for the special aspects on the digital format pertain to the text, photographs, images, animation, graphics, maps, voice records, and films.

In the new FATİH project, the five major criteria that were determined by MoNE to evaluate the e-content are general aspects, pedagogical aspects, technical aspects, audio aspects, and visual aspects. The general aspects involve issues on constitutional laws of the state,

Ministry, human rights, and objectivity. The pedagogical aspects include appropriateness for the curricular, scientific, socio-cultural, and instructional approaches of the Ministry. The technical aspects pertain to the e-content working properly and in a smooth and instructive way. The audio aspects pertain to the auditory materials working in a smooth and clear way appropriate to the content. The visual aspects involve the appropriateness to visual design principles and being in line with the pedagogical and technical aspects.

Can students move at their own pace through the content? Do students interact with other students in their courses? If so, how often?

For the online courses, only the open primary, high school, and vocational schools are considered since in the other institution courses are held face-to-face or are blended. The online content in the open schools appears in video format as TV programs or audio format as radio programs (MoNE Internet TV, 2011). The books are also given in PDF format to download and use. As in any video or audio content, these segments can be used at any pace but allow no interaction. There are no opportunities for interaction among students or tutors.

What is the role of the teacher in the online course?

There are no teachers present in the online courses. The presenters in the videos and audios present information on the subjects; however, these are not teacher roles.

How is online course quality identified and maintained?

The online materials are developed and controlled by the Ministry. Their quality is maintained by the expert groups on certain aspects related to the predefined criteria as presented above.

How is credit awarded for online courses? How are students with special needs served and supported?

Open primary and secondary schools assess student performance via written multiple-choice examinations. On their websites, there are also sample online exams for students (e.g., [http://www.aol.meb.gov.tr/hazirlık\\_testleri/index.html](http://www.aol.meb.gov.tr/hazirlık_testleri/index.html)).

There are audio materials designed and provided for hearing-impaired students but no other features are embedded for students with special needs.

## Policy and Leadership

Who is driving online learning? Who authorizes online and blended learning? Is there an accrediting organization to oversee online and blended learning?

As the responsible institution of MoNE for ICT organization and implementation, EGITEK is driving and authorizing online and blended learning. There is no regular accrediting organization to oversee online and blended learning. However, TTKB as a unit within the MoNE acts as a control and supervisory mechanism to oversee programs developed for primary and secondary schools. The main function of the unit is defined as below (MoNE, 2000):

Board of Education and Discipline is a decision-making unit directly reporting to the minister. It helps the minister in almost every education-related matter, expresses opinions, undertakes researches or has others do researches on education(al) problems.

MoNE included the use of distance education in the strategic plan for 2010–2014 with special focus on e-learning (EGITEK, 2011). The main actions are to guide students and teachers in using e-learning so that they can improve their skills and professional development and to take the necessary steps to construct policies and actions. The main strategy states that the “Internet is regarded as one of the major learning environments of the era. The strategy for the effective use and dissemination of the Internet by all citizens will be enhanced taking the regional differences into consideration” (p. 150). In line with these strategies, MoNE takes the leadership in authorizing and maintaining online learning. In current open education programs, MoNE directs the regulations and all implementation initiatives.

Do teachers need to be certified to teach online or in a blended learning environment?

No policies exist for teacher certification for teaching online or in a blended learning environment yet. In-service training is planned to help teachers become familiar with the online tools and learn to use them effectively in their courses.

How are online programs funded?

There are different sources for funding the current and future online programs and resources, which are all related to MoNE. The Ministry of Transport and Communications, Information and Telecommunications Authority, State Planning Agency, Department of Management of Funds, and European Union funds are just a few.

## What special purposes do online programs serve, i.e., for credit recovery and drop-out prevention?

The current open programs serve to help students complete their education and earn certificates via advanced information and communication technologies. The websites of these schools offer opportunities to study and practice the course materials. The open schools educate people from all provinces of the country and citizens living abroad (i.e., Western Europe, Mekke, Medine, Riyad, Trablus). Open vocational and technical schools offer certificates, while open primary and secondary schools give diplomas.

## How are leaders of online and blended learning identified and trained?

EGITEK offers in-service training on online content development to teachers with a blended learning approach. Some examples of online facilities for training include data access portals (Global Gateway, Skool.tr Portal, think.com), Microsoft Collaboration in Education Program, Intel Teacher Education Program, Project of Innovative Teachers, and Program of CISCO Networking Education Academy (Eurydice, 2010). In 2010 and 2011 training, almost 30,000 teachers who will be potential leaders of online and blended learning in their schools were trained.

## Are there specific leadership skills needed to successfully oversee online and blended learning environments?

There are no special leadership skills defined to oversee online and blended learning environments. The leaders are generally selected from the ICT teachers or ICT coordinators who already have the necessary technical and pedagogical skills or from the schools that had ICT training before.

## Final Remarks

Although Turkey has a remarkable history in distance education programs and institutions in higher education level, not much can be found for practices in the lower levels, including primary and secondary education. Yamamoto and Aydin (2010) approach the current status of e-learning in K–12 quite pessimistically: “There is almost no successful initiative about integration of e-learning into classrooms” (p. 982). It can be asserted that the extensive previous experience of higher education institutions with distance education via print and broadcasting technologies can allow a smooth transition to e-learning with the use of Internet technologies. In the case of primary and secondary levels for which distance education is a concept with unknowns, e-learning can be regarded as in its infancy. Open primary and secondary schools have a great experience in terms of distance education and with the current online initiatives (i.e., tests, content, and other resources); they will be exemplary to other formal schools, as well as to their counterparts. It is also believed that more research is needed for e-learning issues and practices for K–12 levels.



The new projects and action plans of the Ministry hold promise for the development of e-learning in primary and secondary schools. A considerable amount of money is allocated for the development and utilization of these projects (e.g., the FATİH project and its components). These projects target not only the K–12 schools but also the open schools to improve their instructional approaches with e-learning facilities. The issue highlighted by Ozdemir (2010) is considered to be remarkable for the future of these projects: the loss of organizational memory that hindered the effective ICT integration process. He described the issue by saying that “... MoNE does not preserve the knowledge and experiences occurring through large ICT integration projects, so it does not retain organizational memory which would be a guide in future projects” (p. 104). Parallel to this argument, the interviews done with the administrators of MoNE for the scope of this report showed that there is a great concern for technology integration and e-learning in this context; however, there is a lack of a systematic approach on the planning, implementation, and assessment of these projects and plans for success and sustainability.

When the future is projected, it can be argued that remarkable improvements and developments are expected in online and blended learning in Turkish K–12 in the following five years. This expectation relies on the increasing interest and trend in the use of online and blended learning. As a final remark, it can be argued that successful utilization of the current projects and the administrators’ attitudes toward the integration of online learning to education are regarded the benchmarks of the future of online learning in Turkey.

## Links

The Fono open education institute: <http://www.fono.com.tr/>

Ugur TV interactive learning platform: <http://www3.ugur.tv/tanitim>

Kampus: <http://www.morpakampus.com>

Okulistik: <http://www.okulistik.com>

Vitamin: <http://www.ttnetvitamin.com.tr>

DigiProtein: <http://www.digiprotein.com>



## CHAPTER

# 7

## Online Learning in Finnish Public Education

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### Introduction

Finland has a population of approximately 5.3 million people. As part of the European Union, its robust modern industrial economy boasts per capita incomes among the highest in Europe. It has very high literacy rates and high participation in its educational services. In 2007, Finland spent nearly 6% of its GDP on education.<sup>35</sup> Clearly, Finnish citizens are highly educated.

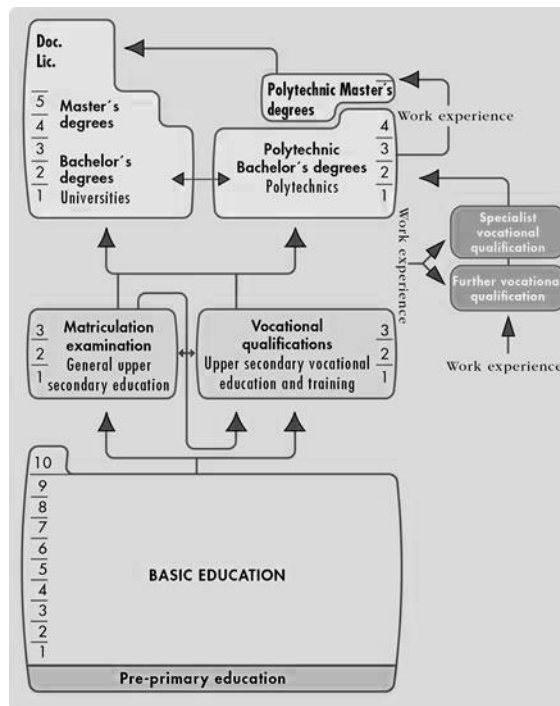
In this chapter, an overview of Finnish online education is presented. The overall educational structure of the nation's schools is outlined, including the importance of local schools and classroom teachers in making pedagogical decisions and content selection in classrooms. Online and blended learning initiatives are described, along with a comparison of the programs started at the national level and those organized at the local level. In this highly decentralized system, quality issues are addressed as well.

### Education in Finland

Finnish education policy is based on the principle of offering all citizens equal opportunities to receive education, regardless of age, domicile, financial situation, sex, or mother tongue. The system is comprised of a nine-year comprehensive school, with mandatory attendance from the age of 7 through the age of 15 or 16 (see Figure 7-1).

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<sup>35</sup> <https://www.cia.gov/library/publications/the-world-factbook/geos/fi.html>



**Figure 7-1: Education in Finland** <sup>36</sup>

Private schools receive the same level of public funding as public schools, but most of the students attend the latter. The majority of the primary and upper-secondary institutions are maintained by municipalities or federations of municipalities. The responsibility of education is divided between the state and the local authorities. The state subsidy level averages 57% of the costs, and the municipalities supply the balance of the educational funding.<sup>37</sup>

At the national level, education is the responsibility of the Ministry of Education. The Finnish National Board of Education (FNBE), under the auspices of the Ministry of Education, is responsible for “drawing up the national core curricula for basic and general upper-secondary education and the framework for vocational qualifications and competence-based qualifications.”<sup>38</sup>

At the local level, municipalities have the freedom to determine how much autonomy to delegate to schools, and the schools are free to arrange their educational services, as long as they fulfill the basic functions determined by the law and the core curriculum set by the FNBE. Schools and municipalities create their own local curricula base on the core curriculum.

<sup>36</sup> [http://www.oph.fi/english/education/overview\\_of\\_the\\_education\\_system](http://www.oph.fi/english/education/overview_of_the_education_system)

<sup>37</sup> [http://www.oph.fi/download/124284\\_Education\\_system\\_of\\_Finland.pdf](http://www.oph.fi/download/124284_Education_system_of_Finland.pdf)

<sup>38</sup> <http://www.oph.fi/english>

In addition, teachers are very independent to choose their own teaching methods based on their local curriculum. The same applies to teachers' freedom to select their own teaching materials. As an example, in a *Time* magazine article, teacher Veli-Matti Harjula stated that he does not have to get anyone's approval to use his teaching methods and he "can pretty much do whatever he wants, provided that his students meet the very general objectives of the core curriculum set by Finland's National Board of Education."<sup>39</sup>

## Online Learning

Online learning is included in the government's national plan to develop technology applications in education, but implementation is left to the local level and to the teachers themselves. There are no governmental licensing requirements or special credentials to teach online. Online education has no special mention as an instructional methodology, source of content, quality assurance, or evaluation feature. All teachers in Finland have at least a master's degree-level education, which gives them a good standing to develop their own work and to create course material independently. The online course material is credited and purchased the same way as the rest of the curriculum.

The methods and means of training teachers for online teaching vary. There are special teacher training organizations that are very often part of universities and some private companies, although peer coaching is becoming ever more popular. The government provides annual funding for teacher professional development, and FNBE selects the training courses on the basis of the applications. The funding is focused on themes that are nationally significant, such as technology in education. Naturally, the schools or local municipalities can purchase any courses they need and see as relevant.

For students, online learning is one learning alternative among others. For example, students may take online courses for flexibility in family schedules or if they have been removed from school for disciplinary reasons.

## Blended Learning in Finland

At the end of the 1990s, Finland was a leading information society; the Finnish Government and Ministry of Education invested heavily in education to prepare the students for the information age. This set a trend in the development of teaching in higher education, supporting the use of educational technologies.

One of the major obstacles for blended learning has been the fact that teachers' work in Finland is very isolated. In many of the Finnish universities and higher-education institutions, instructors are responsible for creating their own blended learning courses without support, exemplars, or guidance. There have been initiatives at many levels to support teachers and

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<sup>39</sup> <http://www.time.com/time/magazine/article/0,9171,2062419,00.html#ixzz1MOv3XxYL>

peers and to provide assistance. For example, Piirtohetin was an online publication that focused on online learning; it was mainly active during the period of 2004–2006.<sup>40</sup>

Blended learning is an ongoing theme, and the fifth annual seminar on the subject was held by the University of Helsinki in 2011. The first seminar in 2007 gathered about 120 participants interested in blended learning, and in 2011 approximately 200 education professionals attended the seminar. The conference hosted its own website, including conference material archives from the previous years.<sup>41</sup> The 2010 seminar publication<sup>42</sup> included some articles in English, but the main content was written in Finnish. The largest conference in the field is Interactive Technology in Education, which has been taking place since 1990; its 2010 conference attracted more than 1,500 participants.<sup>43</sup>

The FNBE has its own Web service ([www.edu.fi](http://www.edu.fi)) that supports teachers, provides online education content, and references other related material. The Ministry also maintains a tool that helps teachers to find suitable online teaching material. This online database contains metadata for available online content, guiding educators to the desired material. One limitation is that the service only groups together the available content source information, including commercial products. It does not provide any references or recommendations about implementation.

## Online Content

Online learning content creation consists of commercial providers and public initiatives, but it comes mostly from the teachers themselves. The large educational publishers have their own online content materials, but these mainly support the existing book sales.

There is no universal strategy for implementing online learning content throughout the public education sector in Finland. Different content standards, technology equipment configurations, and applications have caused publishers to take a very cautionary stance toward online material. Uneven technology implementation in schools makes the market difficult to supply with digital content. Some schools are well equipped with a portable computer for each student, but elsewhere in Finland, schools even lack classroom computers for teachers.<sup>44</sup> The current situation in online content can be described as a dilemma where there is little available content, but at the same time there is little demand for the content.<sup>45</sup>

The largest publishers have produced digital material since the 1990s. The initial content was on CDs; current content uses gaming concepts and course interactivity that can be delivered

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<sup>40</sup> [http://www.helsinki.fi/valtiotieteellinen/julkaisut/blended\\_learning\\_Finland.html](http://www.helsinki.fi/valtiotieteellinen/julkaisut/blended_learning_Finland.html)

<sup>41</sup> <http://blogs.helsinki.fi/sulautuvaopetus/>

<sup>42</sup> <http://www.helsinki.fi/valtiotieteellinen/julkaisut/sulautuva2010.html>

<sup>43</sup> <http://itk.fi/wiki/show/709/Information>

<sup>44</sup> <http://suomenkuvalehti.fi/jutut/kotimaa/kustantajat-varovaisia-sahkoisten-oppimateriaalien-kanssa-mita-lappareilla-tehdaan-jos-ei-ole-sisaltoja>

<sup>45</sup> <http://www.minedu.fi/export/sites/default/OPM/Julkaisut/2010/liitteet/okmtr12.pdf?lang, p. 26>

through the Internet. Yet, there are still challenges for the providers. Because teachers have a high autonomy with their teaching methods, tools, and materials, it means that the content publishers need to also provide a variety of different approaches and products.

The state of online learning was documented in an annual report, “Learning Business Cluster in Finland.”<sup>46</sup> While its content is dated, it provides a historical lens for Finnish online learning initiatives.

Today, popular content providers charge about 18 € + VAT per student. Such services are mainly paid by the schools or the municipalities. Because of distributed school and classroom autonomy, implementation of purchased digital materials varies widely across schools. Open source learning management systems are widely used in the Finnish education system at schools and universities.

In an attempt to form a Finnish market, the content providers formed The Association of Finnish eLearning Centre, which is “an independent national association that promotes sharing of knowledge, best practices and quality in eLearning. The Centre distributes information and performs as a contact surface for partner finding, such as experts and service providers, in Finnish eLearning market.”<sup>47</sup>

As for general conferences, EDUCA is the largest national trading event for education in Finland.<sup>48</sup> This annual event attracts attendance from both the private sector and the public sector in the educational field. The prominent eLearning providers are equally present in the trade fair. In 2011, the event attracted over 200 exhibitors and about 12,000 conferees. At the national level, FNBE organizes an annual pedagogical, two-day seminar about virtual teaching, which gathers together over 600 teachers and professionals.

## Many Initiatives, Fewer Lasting Results

Finnish governmental top-down investment and project development approach for online learning produced several development initiatives, committees, organizations, projects, and reports in the 1990s and first half of the last decade. This boom phase was a direct result of the government’s intentional actions to push the Finnish educational sector forward into the information society era. The effort yielded very little actual content and substance for the teachers and students. Today, this can be seen as abandoned websites and project pages that have not been updated.

A good case in point is the Finnish Virtual University (FVU) initiative. “Finnish Virtual University is a partnership of all 21 Finnish universities. It supports and develops collaboration among universities in the utilization of information and communication technologies (ICTs) in teaching and studying. As a Consortium it develops information

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<sup>46</sup> [http://www.swbusiness.fi/uploads/reports/1112875159\\_Learning%20Business%20Cluster%20in%20Finland,%202005.pdf](http://www.swbusiness.fi/uploads/reports/1112875159_Learning%20Business%20Cluster%20in%20Finland,%202005.pdf)

<sup>47</sup> <http://www.eoppimiskeskus.fi/en/>

<sup>48</sup> <http://web.finnexpo.fi/Sites1/Educa/en/Pages/default.aspx>

network-based training and educational services for the shared use of its member universities.<sup>49</sup> While the government funded the project, it generated tangible results, such as 460 online courses during the years 2001–2002, according to the Ministry of Education.<sup>50</sup> The FVU project concluded in 2010 with all the participating universities carrying on individually.

In a different initiative, the Finnish Online University of Applied Sciences (UAS) was developed by the educational institutions themselves, and it was neither officially supported nor funded by the government. The service is still operational and it offers polytechnic students an avenue to learning with a nationwide selection of courses from any Finnish university of applied sciences. The studies via the UAS are mainly carried out as online programs.<sup>51</sup>

Peda.net is a similar story of bottom-up approach that has managed to survive and remain operational throughout the years.<sup>52</sup> Peda.net is a research and development project coordinated by the Finnish Institute for Educational Research, University of Jyväskylä. From the outset, it has been built in close operation with the end users and teachers. The service has low membership fees, which has guaranteed a large user base and collaborative environment of mutual sharing. On the downside, peda.net is a very typical Finnish online learning service that develops content slowly with limited visual appeal, compared to features available through other digital technologies.

The national broadcaster, YLE, produces online material in cooperation with head teachers and the FNBE. The content is available as traditional broadcast programs but also as audiovisual teaching material and tools that are available online.<sup>53</sup> One objective of the cooperation between FNBE and YLE has been to provide easily accessible educational material to teachers.

## Online Content Policies and Assurances

Finnish universities have a multitude of different quality systems, which are implemented and followed in various levels and layers of the organizational hierarchy. Such systems include ISO 9000, European Foundation for Quality Management, and European Quality Improvement System. Balanced Score Card has been used in quality control as well. Some universities have implemented quality handbooks to guide their operations. According to a quality survey, many universities do not consider online learning as a separate matter, but they apply the same principles and methods as what comes to teaching quality assurance in general.<sup>54</sup>

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<sup>49</sup> <http://virtuaaliyliopisto.fi/en/index.html>

<sup>50</sup> [http://www.vopla.fi/tiedostot/Artikkelit/Vopla\\_esiselvitys.pdf](http://www.vopla.fi/tiedostot/Artikkelit/Vopla_esiselvitys.pdf), p. 10

<sup>51</sup> <http://www.amk.fi/en/index.html>

<sup>52</sup> <http://www.peda.net/en/index.php>

<sup>53</sup> <http://opettajatv.yle.fi/inenglish>

<sup>54</sup> [http://www.vopla.fi/tiedostot/Artikkelit/Vopla\\_esiselvitys.pdf](http://www.vopla.fi/tiedostot/Artikkelit/Vopla_esiselvitys.pdf), p. 14–15

For example, the University of Helsinki focused its attention to the quality of web-based courses in 2003–2006 and tried to enhance quality awareness and skills among the teachers and staff who were involved with the eLearning issues. The project publication from 2005, *Quality Online – Dimensions of Virtual Learning in Higher Education*, has a collection of articles on the subject and an English summary of the report content.<sup>55</sup> The final publication (with an English version), *Quality Teaching in Web-Based Environments: Handbook for University Teachers* aims “to provide teachers ideas and tools for the planning, assessment and development of web-based courses.”<sup>56</sup> The handbook can be used as a workbook. Its content is based on research results and offers practical examples of teaching solutions for use in web-based learning environments.”

As outlined above, Finnish education has no universal standards and practices for quality assurance in online learning. Even the government-level instructions are mainly recommendations and suggestions. Due to the high level of independency given to the teachers regarding their methods of teaching and course material, there are no uniform bodies that accredit or certify online content. However, educational organizations cooperate nationally and internationally in these matters.

## Summary

The Finnish education system gives high autonomy and independence to the local level and teachers. This is reflected in the online and blended learning. They are not considered as any special cases nor are they treated differently. They simply are tools and means among many others. Governmental top-down approach emphasizes guidance, support, and recommendations, and it does not force online learning in a unified or standardized manner. This has produced a fragmented online learning environment where many methods, standards, and providers are trying to cooperate and work together with the educational organizations and teaching professionals. Finland is a small market with an isolated language. Foreign language content and online material has a very limited usage without local adaptation. Due to local initiatives, very little consolidated data or research is available on the actual usage of online learning in the Finnish educational sector.

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<sup>55</sup> <http://www.helsinki.fi/ktl/julkaisut/lv/laadukkaastiverkossa.pdf>

<sup>56</sup> [http://www.helsinki.fi/julkaisut/aineisto/hallinnon\\_julkaisu\\_73\\_2010.pdf](http://www.helsinki.fi/julkaisut/aineisto/hallinnon_julkaisu_73_2010.pdf)







## CHAPTER

# 8

## Case Study on Online and Blended Learning in the United Kingdom

**Isha Kacker, Institute of Economic Affairs  
London**

### Abstract

In the United Kingdom (UK), online learning programs for primary and secondary students serve a number of purposes. For example, they allow pupils to access their schoolwork from home and facilitate extra help for those in need. However, online learning is most often used to support courses for medically homebound students, students with special scheduling considerations, and students with special needs. Digital tools in the classroom are mainly used to upload and download resources, such as homework. Many students across the UK do have access to online learning, whereas few students have access to blended learning opportunities. There is a fairly high ratio of students to computers in the schools.

There is no government organization that oversees quality standards for online teaching or online courses. Professional development programs in Information and Communications Technology (ICT) for teachers do exist. However, there are a number of barriers teachers face in attending such programs, such as limited time and access to funds to pay for the training.

In response to austerity measures, the UK government has recently closed several governmental departments and quasi-governmental agencies which used to support technology in education. These cuts have given control over learning and technology back to the schools. Private vendors supply most online content and courses and are contracted by the schools based on local needs.

### Background

In the United Kingdom, the Department for Education is responsible for any policy concerning school syllabus and learning. Over the past ten years or so, online learning has

become a larger and more integral part of school curriculum. Studies have been conducted to prove the effectiveness and efficiency of online learning, as well as its usefulness with students who have special needs.

At the end of 2010, in an attempt to simplify guidance given to schools, the UK government closed the British Educational Communications and Technology Agency (BECTA), which was the government department that ensured the use of technology in school learning. It also shuttered the Qualifications and Curriculum Development Agency (QCDA) and the National Curriculum website. This was a part of the larger spending cuts that took place to reduce the budget deficit and axe expensive quasi-governmental agencies.

The close of the BECTA was an attempt by the government to give schools more freedom to choose the best technology for them. Since then, a number of private and nonprofit organizations have risen to provide technology and online services, advice, and products to schools.

The government provides funds to local authorities who can then use the funds to pay providers of online learning programs for primary and secondary schools. However, it still maintains some online resources (see “Online Content”).

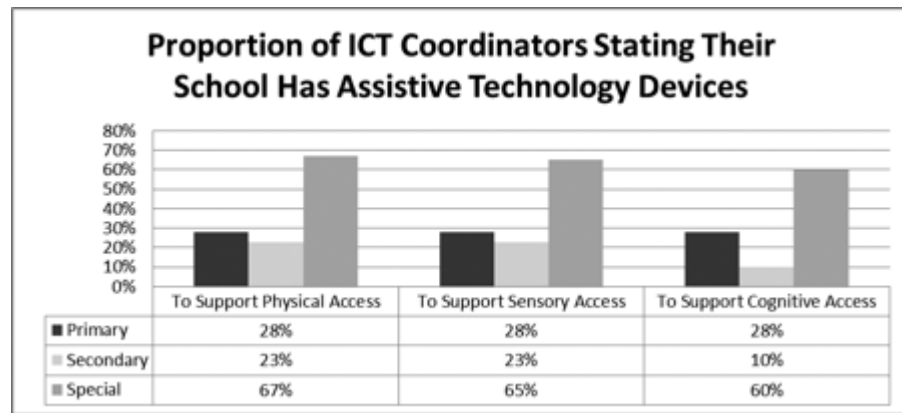
While the UK government does not have a master strategic plan for online learning per se, it is working on a general technology strategy, to include online learning.

Prior to its closure, BECTA published a Harnessing Technology School Survey every year to assess the use of technology in schools. The Harnessing Technology School Survey 2010 provides data on six areas of ICT in schools: provision of computers, ICT leadership and management, teaching and learning, staff confidence and competence, parents and extended learning, and benefits.

Its most recent report provides relevant data for understanding the profile of online learning for primary and secondary schools in the UK. For example, it found that the median ratio for pupils to computers in primary schools was 6.9:1, for secondary schools 3.4:1, and for special schools 3:1. Proportional to school size, secondary schools have more desktop and laptop computers than primary or special schools.

The report also found that the technology devices that teachers said they had highest access to were interactive whiteboards, desktop computers, and digital cameras. Most teachers responding to the study did not have access to handheld devices, such as iPads, netbooks, or mobile phones.

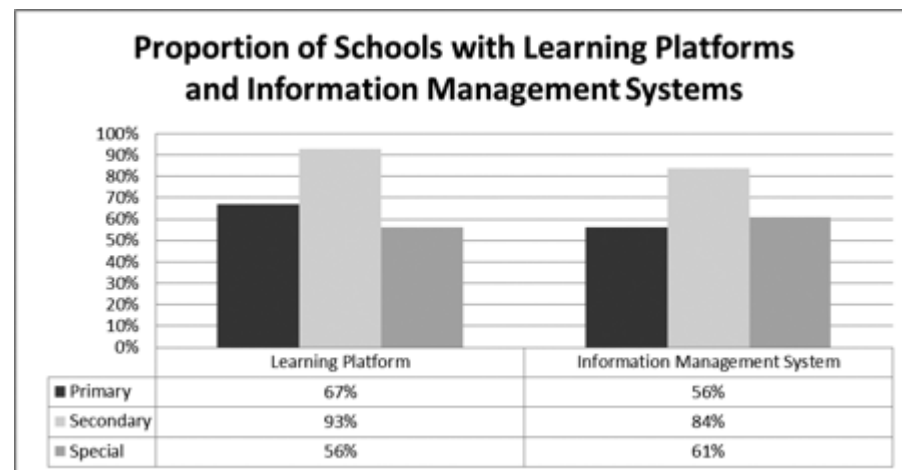
Assistive technology devices to support physical, sensory, and cognitive access were more likely to be available in special schools than any other schools. Teachers surveyed said that pupils from special schools were more likely to have access to all three technologies at least some of the time. Table 8-1 illustrates the proportion of assistive technology devices in schools reported by ICT coordinators.



**Table 8-1. Proportion of Assistive Technology Devices**  
**Source: Harnessing Technology School Survey, 2008**

Over 99% of schools have broadband Internet access. However, this may not mean they are using it for online learning. The majority of schools (over 80% of secondary schools) have access to learning platforms. Sixty percent of secondary schools gave their teaching staff access to the administration network, as compared to 21% of primary schools and 23% of special schools. Secondary schools also had greater access to a dedicated team of technicians (88%). Twenty-six percent of primary schools shared an ICT technician with another school and 28% used a teacher-ICT coordinator.

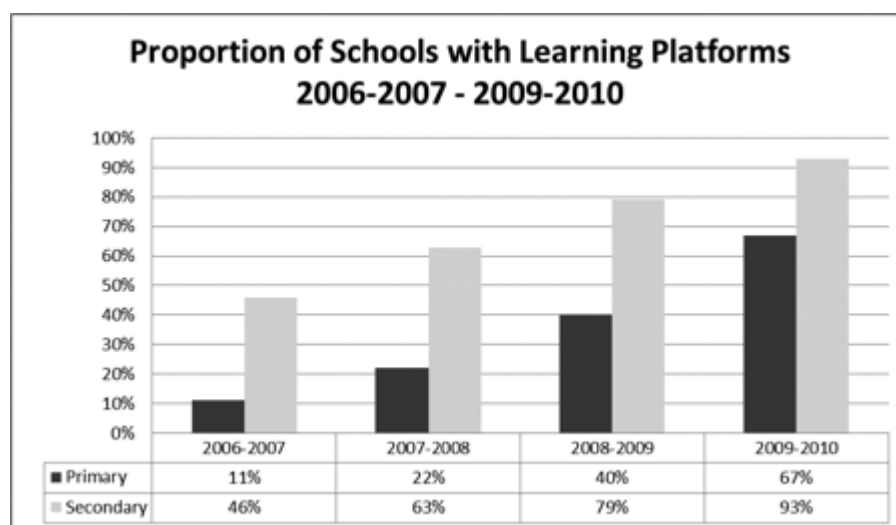
Most secondary schools had access to a learning platform, as well as an Information Management System (IMS). These figures were lower for primary and special schools. Learning platforms and IMS are mainly used to upload digital learning resources for lessons and homework. Table 2 depicts the proportion of schools with learning platforms and IMS.



**Table 8-2: Proportion of Schools with Learning Platforms and IMS**  
**Source: Harnessing Technology School Survey, 2008**

Table 8-3 describes the proportion of schools with learning platforms between the school years 2006/2007 and 2009/2010. In the earlier years, secondary schools had more than

double the amount of learning platforms than the primary schools. By 2009/2010, primary schools were beginning to catch up, highlighting the rise of technology that was being used for younger students.



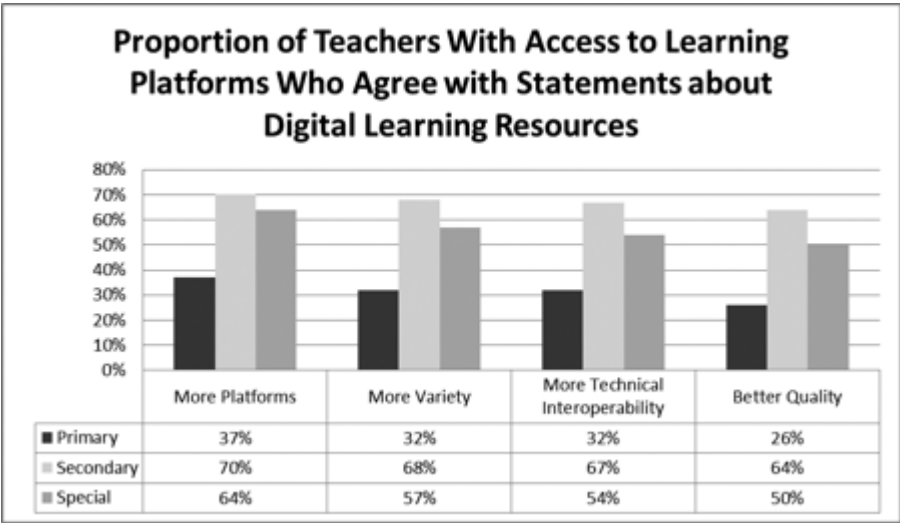
**Table 8-3: Proportion of Schools with Learning Platforms, 2006/2007–2009/2010**  
Source: Harnessing Technology School Survey, 2008

Table 8-4 illustrates the proportion of schools using digital platforms to carry out a variety of activities at primary, secondary, and special schools. It shows that secondary schools use various digital platforms more frequently than either primary or special schools. Across the three types of schools, digital platforms were most often used for uploading and storing digital learning resources for lessons and homework, followed by delivering lessons.

Activities	Primary Schools	Secondary Schools	Special Schools
Accessing management information	33%	58%	24%
Assessment	45%	70%	39%
Communicating with learners	59%	70%	33%
Communicating with parents	34%	45%	18%
Communicating with staff	47%	70%	43%
Delivering lessons	63%	75%	45%
Communication between learners	51%	55%	29%
For learners to download and upload homework	53%	81%	19%
Live chat and discussion forums	40%	38%	15%
Personalizing learning	52%	70%	30%
Planning work	59%	68%	33%
Reporting to parents	12%	36%	13%
Uploading and storing digital learning resources for lessons and homework	74%	86%	55%

**Table 8-4: Proportion of Schools Using Digital Platforms**  
Source: Harnessing Technology School Survey, 2008

Table 8-5 shows the percentage of teachers who would like to see some kind of change with digital learning platforms. A higher percentage of teachers from secondary and special schools were more interested in an increase in the use of and access to digital platforms for learning than was found with primary school teachers.



**Table 8-5: Proportions of Teacher Requests for Changes to Learning Platforms**  
Source: Harnessing Technology School Survey, 2008

# Students

Overall, online learning options are available to most primary and secondary school students in the UK; whereas, blended learning options are only available to some students. Most students attending large and small schools, both urban and rural, use online learning. It should be noted that students from rural schools do have access to the same range of subjects as their urban counterparts.

In general, online learning provides courses for medically homebound students and students with special needs. It also provides students with options when they have scheduling conflicts, such as those who must work to support their families.

The types of technologies used by students to engage in online learning include laptops and desktop computers. Additionally, digital whiteboards are widely used in schools across the UK to access online and blended learning resources.

# Teachers

While there are no special requirements for teachers to teach online, they must be qualified to teach. Those teachers who do teach online may or may not have received ICT or Continuing Professional Development (CPD) training from the schools where they teach. In some cases, schools may require that to teach online a teacher must engage in ICT and/or CPD training.

The general picture that can be drawn from various studies conducted by the Department of Education and other educational organizations is that the current atmosphere of CPD for ICT in the country is fragmented and decentralized. The lack of standardization in providers and their CPD courses and products makes it extremely difficult to evaluate the impact of existing programs.

The 2010 BECTA survey identified the players involved in ICT and CPD training for teachers. These include providers of ICT/CPD (including private firms), school leaders (including senior school management executives who receive and disperse funding for training), and practitioners (including those teachers who receive ICT/CPD training).

**Providers:** According to the report, providers of ICT in schools have felt restricted by market conditions. They felt that the market was small and uncertain as schools did not have funds dedicated to ICT/CPD. Another factor that adversely affected providers was the disparity in technological knowledge of teachers. The study also found that the providers advertised only through flyers, word-of-mouth, emails, etc. None of the providers interviewed used social networking sites.

Three problem areas identified by the providers who participated in the survey included the school management's attitude toward ICT for teachers, government and local authority policies and the lack of focus on learning outcomes, and teacher confidence.

The providers reported challenges that impeded teacher professional development for online teaching. For example, local authorities allocated half days to full days for teacher training; however, teachers found it difficult to find time to attend classes and were further restricted by the paucity of funds. Additionally, course content was overwhelmingly about skills and the technical working of the program and not about teaching skills.

Providers identified two new directions for ICT/CPD to move in: change from skills-training strategies around the embedding of ICT, and increase the influence of face-to-face conferences, educational blogs, and micro-blogging sites such as Twitter.

Most providers reported having a vision or a Mission Statement that they used as a quality control and as an assessment guide for the courses they offer. However, the report found that the overall quality of the courses offered by providers could be improved by more rigorous evaluation that focused on classroom practice and management change. Additionally, an outcome-based assessment could be key for improving course quality.

**School leaders:** School leaders reportedly found out about ICT/CPD through their local authorities, by searching online, or from professional colleagues. Cost and time requirements were taken into account when deciding which providers/courses to hire, as well as an assessment of specific staff member needs. It was not clear from the survey what management categorized as "needs."

Some ICT leaders in schools felt that the training they received was too basic and not intellectually stimulating enough for teachers to spend time learning. They wanted the

focus of the training to be on innovative pedagogical learning opportunities instead of the mechanical workings of a program itself.

**Practitioners:** Practitioners reported that management discouraged them from gaining formal qualifications through professional courses over informal CPD learning. The most effective CPD courses practitioners attended were widely varied. Several believed face-to-face and online meetings through professional communities and micro-blogging were the most informative and pedagogically stimulating courses they had attended. Others reported negatives associated with online learning, such as the lack of technology at schools, unreliable equipment, e-safety concerns, poor support services, poor pedagogical practices, fears about social isolation, etc. The survey identified several teachers who were skeptic of ICT and who felt that further research in the advantages of online and blended learning for students should be undertaken before imposing ICT/CPD training on teachers.

## Online Content

Online content is primarily developed by private providers. The majority of resource providers offer a learning platform or an online framework for schools that can then develop their own content, based on the syllabus being followed.

There is some level of government involvement in online content. For example, the Grid Club, an online curriculum resource site, is an example of the government partnering with private entities to create online resources for younger students. It was initiated by the Department for Education and developed by Channel 4, Intuitive Media, and Oracle. The website offers fun educational programs for seven to eleven-year-old students and has won several awards, including the British Academy of Film and Television Arts (BAFTA) Interactive Award for best educational website.

## Online Courses

If online courses are part of the school's curriculum, the pace of learning is decided by the schools, not the providers of courses. If online courses are taken by students at their own initiative, theoretically they can move at their own pace. If students are being taught via an online learning platform, their online learning forms one part of their general school learning. Students who do their homework online and use the online portal to submit their work are essentially working alone; however, with e-learning in the classroom via a digital whiteboard or in a room full of computers, students have the opportunity to work with their peers. For example, Accipio Learning, an online course provider, has provisions for student interaction through chat rooms and discussion pages. They offer General Certificate of Secondary Education (GCSE) courses and work-related learning for students of all abilities who cannot attend mainstream school. Every provider or school has its own way of awarding credit for courses provided.



There is no centralized system for maintaining and identifying course quality. Course providers rate themselves against their own quality criteria. In a broader sense, market forces are the best quality control for online providers.

## Policy

While the Department of Education is responsible for driving policy about online learning, certain policy measures have constrained ICT and CPD. For instance, teachers have had limited time to take training classes as training must be taken after school hours, and there is no structural framework for teacher training or ICT for schools. Additionally, there is no incentive for schools to provide CPD as they do not receive any funding that is earmarked for ICT purposes. Furthermore, CPD is being driven by currently perceived needs and not a long-term strategy.

## Leadership

For purposes of this report, the term “leaders of online and blended learning” refers to the government executives who are responsible for driving policy in online and blended learning or the school management leaders who are responsible for deciding the budgetary and allocation issues for online and blended learning. It does not appear that these leaders are chosen based on any prior expertise in the area. Several organizations that give advice to schools on technology and e-learning choices boast of having ex-Ofsted (Office for Standards in Education, Children’s Services and Skills) managers, ex-head teachers, etc., on their boards. However, the market ensures that schools employ managers who are experienced and have a view on ICT learning.

## Conclusion

In conclusion, online learning in UK primary and secondary schools is driven by the schools. They are seen as the best judge of their needs and are given the power to spend their funding according to their needs. They work with ICT/CPD providers, depending on available funding and their own quality assessment.

Technology use in schools is primarily for uploading and downloading learning resources and for delivering lessons. Devices used by students tend to include laptop and desktop computers, while whiteboards occupy most UK classrooms.

Teachers prefer courses that teach online learning from a pedagogical perspective rather than a mechanical one. The demand-supply gap will be bridged by the abolition of national policy on ICT as the third-party intervention from the government has been removed.

Private vendors provide most of the online content and resources. In some instances, the UK government's Department for Education may partner with private vendors to produce online resources.

There are a number of challenges that schools face as they move toward online learning. For example, there is a great lack of awareness on behalf of the general public, as well as school teachers, of the benefits that can be realized by using technology for learning. There is also a lack of teacher training in the applications of technology for learning. Additionally, the lack of policy or policy barriers that limit access to online courses for students and the lack of funding for professional development and teacher training further impede the growth of online learning.

On the other hand, there are numerous opportunities to expand online learning options in the UK. For instance, online learning is becoming a larger and more integral part of school curriculum, and schools are directly responsible for the use of ICT for learning. Additionally, public-private partnerships are emerging to serve the growing demand for online curriculum and learning opportunities.



# Oceania Countries





## CHAPTER

# 9

## Online Learning in Youth Public Education (Ages 5–18 Years) in Australia

**Dr. Kevin Donnelly, Education Standards Institute,  
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### Profile

- In 2010, there were 3,510,875 students in Australian schools: NSW (32%), Victoria (24%), Queensland (21%), WA (10%), SA (7%), and Tasmania, NT and the ACT combined (5%).
- In 2010, 66% of students attended government schools, 20% attended Catholic schools, and 14% attended independent schools. In 2000, the figures were 69%, 20%, and 11% respectively.
- In 2010, there were 9,468 schools across Australia, divided into 6,743 government schools (71%), 1,708 Catholic schools (18%), and 1,017 independent schools (11%).

Note: Compared to the majority of other OECD countries, Australia has a very strong non-government school sector that, while having to conform to government regulations and controls in a number of areas, has a high degree of autonomy. Across Australia, approximately 34% of students attend non-government schools.

### Governance

Similar to the United States, Australia has a federal system of government with the Constitution dividing powers and responsibilities between the Commonwealth Government and the six states: New South Wales, Victoria, Queensland, South Australia, Western Australia, and Tasmania. There are also two territories, the Northern Territory and the Australian Capital Territory, that are semi-autonomous.

Under the Constitution, the states have responsibility for school education, and the states and territories have their own education departments, which are responsible for funding and managing schools.

While the states and territories are responsible for schools in areas such as curriculum, assessment and teacher training, registration, and professional development, over the last ten to twenty years the Commonwealth Government has assumed greater influence and control over education through funding mechanisms and what is termed co-operative federalism. Increasingly, education authorities from the various jurisdictions are working collaboratively under the auspices of peak government bodies — such as the Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA), later renamed the Ministerial Council for Education, Early Childhood Development and Youth Affairs (MCEECDYA)<sup>57</sup> — to adopt a national approach to school education.

An example of this national approach is the Melbourne Declaration on Educational Goals for Young Australians<sup>58</sup> that was endorsed by MCEETYA in 2008. The declaration is described as setting out “the agenda for Australian education over the next decade” and mandates a number of goals that all state and territory education departments are committed to implement and monitor. Goal 2, under the heading “Successful Learners,” makes specific mention of Information and Communications Technology (ICT) when it states that all students should “have the essential skills in literacy and numeracy and are creative and productive users of technology, especially ICT, as a foundation for success in all learning areas.”

A second example of adopting a national approach is Australia’s national curriculum (initially involving English, history, science, and mathematics from preparatory to grade 10) that also emphasizes ICT. All subjects in the national curriculum, under the heading “General Capabilities,” are expected to foster students’ “competence in information and communication technology.”

## Australia’s Education Revolution

In 2007, the Australian Labor Party won government at the national level (led by Kevin Rudd), and since that time, under the banner of an “Education Revolution,” the Commonwealth has implemented a number of initiatives that have led to a more centralized and uniform approach to education. Initiatives include a national curriculum, a national testing and accountability regime, national teaching registration and certification, specific programs such as strengthening literacy and numeracy skills, connecting all schools to the Internet, and providing computers for all secondary school students.

The new national curriculum, currently being trialed and slated to be implemented at the start of 2013, is to be delivered electronically, and governments at all levels are committed

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<sup>57</sup> See <http://www.mceecdya.edu.au/mceecdya/>

<sup>58</sup> A copy of the ‘Melbourne Declaration’ can be found at [http://www.mceetya.edu.au/mceecdya/melbourne\\_declaration,25979.html](http://www.mceetya.edu.au/mceecdya/melbourne_declaration,25979.html)

to making greater use of the new technologies represented by the Internet, computers, electronic whiteboards, iPads, e-books, and online learning.

The Australian Curriculum, Assessment and Reporting Authority (ACARA)<sup>59</sup> is responsible for developing and managing Australia's national curriculum and testing regime. The intention is that the curriculum (including content and performance standards) and related classroom teaching material will be available online.<sup>60</sup>

## Teacher Professional Development

### Who trains teachers to teach online?

Teacher training institutions, generally university faculties of education, have specific ICT subjects and modules that are incorporated into teacher training as part of either one-year Diploma of Education or four-year Bachelor of Education courses. At the University of Melbourne, for example, students undertaking the Bachelor of Education (Primary) course are expected to complete a course titled "ICT and Children's Learning."<sup>61</sup> The course is described as follows:

The focus of this subject is on developing a sound understanding of how current information and communications technology can be used to support curriculum goals and to enhance teaching and learning in early childhood and primary settings.

Once teachers are qualified and working in schools, there is an expectation that they will undertake on-going professional development in order to gain continued registration. As noted elsewhere in this report, an important aspect of recently endorsed national teaching standards involves familiarity and expertise in the areas of ICT and e-learning.

To assist teachers to teach online, various state and territory education departments also provide Internet portals and related resources and materials. In Victoria, for example, teachers are able to access the ePotential portal.<sup>62</sup> The ePotential portal assesses a teacher's expertise and readiness to utilize ICT in the classroom and also provides banks of curriculum resources.

### What are the requirements for teaching online?

At the primary school level, the majority of teachers undertake a generalist four-year undergraduate degree program and during their training are expected to gain practical and theoretical experience and knowledge of utilizing ICT and e-learning in schools. Secondary

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<sup>59</sup> ACARA's website is <http://www.acara.edu.au/default.asp>

<sup>60</sup> The proposed national curriculum and related material can be accessed at <http://www.australiancurriculum.edu.au/Home>

<sup>61</sup> See <https://handbook.unimelb.edu.au/view/2011/EDUC20023>

<sup>62</sup> <http://epotential.education.vic.gov.au/> (Note, only registered users can log onto this site.)

school teachers, after completing an undergraduate degree in their subject area, undertake a one-year Diploma of Education program where ICT and e-learning are also emphasized. All those who have completed an approved teacher training course and are registered to teach are expected to make use of online learning. The pedagogical approach is described as 21st Century Learning, an approach based on personalized learning where more formal, didactic models give way to students having greater control and flexibility and where online learning is fostered.

## What are the requirements for teaching in a blended environment?

In order to teach in schools, beginning teachers must complete an accredited teacher training course, generally at a tertiary institution. Provisional registration is granted and full registration is subject to teachers meeting the standards set by the various state and territory bodies responsible for teacher registration and on-going certification. As previously mentioned, Australia is moving toward a national system of setting and monitoring professional standards for teachers.<sup>63</sup>

To teach successfully in a blended environment, teachers are expected to embrace a pedagogical model characterized as 21st Century Learning. Teachers are expected to fashion learning experiences catering to a diverse range of students with different learning styles, interests, and levels of ability and motivation. Teacher training, professional development, and teaching standards all emphasize ICT and e-learning, with a particular focus on online learning. Personalized learning with a strong ICT and e-learning focus is recommended by state and territory education departments and curriculum bodies.

Victoria's Principles of Learning and Teaching (PoLT)<sup>64</sup> provides a good example of how teachers are expected to utilize ICT and e-learning (including online learning) in their practice. PoLT states:

### **6.3 The teacher uses technologies in ways that reflect professional and community practices**

New technology challenges and changes the way we behave and learn in our contemporary society. Learners need to develop a mastery of contemporary skills and techniques and their application through new media and new technologies. When used in ways that reflect their contemporary use, learning technologies can provide powerful stimulus for students to operate autonomously and develop expertise. Learners use a range of learning technologies to create new knowledge and understandings.

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<sup>63</sup> A copy of the National Professional Standards for Teachers can be found at <http://www.aitsl.edu.au/national-professional-standard-for-principals-landing.html>

<sup>64</sup> A copy of PoLT can be found at <http://www.education.vic.gov.au/studentlearning/teachingprinciples/default.htm>

This component is demonstrated by teachers:

- Developing students' capabilities with generic software such as spreadsheets, design tools, and communication technologies
- Using learning technologies to support quality learning behaviours such as exploration, conjecture, or collaboration
- Using ICT to increase student choice and flexibility with respect to their learning
- Having students collect information by electronic means such as data probes, digital cameras, video recording, and digital displays
- Having students use the Internet for information searching and to communicate with special interest groups
- Having students explore ideas and possibilities using simulation software
- Encouraging students to present results and publish reports using a range of software

The component is NOT demonstrated when:

- Students are exposed to a limited range and uses of ICT
- Students are not educated or encouraged to make choices about what learning technologies they use or when and how they use them
- The use of computers does not encourage increased dialogue and questioning but tends to isolate individuals within their tasks
- Technologies are not used in ways that take advantage of their particular potential to support learning

How are online teachers monitored and determined to be “highly qualified”? Are there specific skill sets that are needed in online teaching that need to be developed in order to be considered “highly qualified”?

All Australian teachers are expected to be familiar with and make use of online learning. As such, teaching standards related to gaining initial and on-going teacher registration have a specific focus on ICT and e-learning.

Generally speaking, Australian states and territories have control over teacher registration, certification, and professional development. More recently, as a result of the Commonwealth Government's “Education Revolution,” a set of national teaching standards has been



endorsed. Such standards rank teachers according to four levels: Graduate, Proficient, Highly Accomplished, and Lead teachers. Under the “National Professional Standards for Teachers,” there is the expectation that teachers will integrate ICT into the following three areas: (1) knowing content and how to teach it, (2) effective teaching and learning, and (3) creating and maintaining a supportive and safe learning environment. For example, Standard 2 “Know the content and how to teach it” — deals with ICT (which includes online learning) as follows:

- **Graduate:** Implement teaching strategies for using ICT to expand curriculum learning opportunities for students
- **Proficient:** Use effective teaching strategies to integrate ICT into learning and teaching programs to make selected content relevant and meaningful
- **Highly Accomplished:** Model high-level teaching knowledge and skills and work with colleagues to use current ICT to improve their teaching practice and make content relevant and meaningful
- **Lead:** Lead and support colleagues within the schools to select and use ICT with effective teaching strategies to expand learning opportunities and content knowledge for all students

A second example of teachers being evaluated and graded in terms of ICT knowledge and expertise is a matrix developed by the Victorian education department as part of its ePotential portal. Teachers are graded in seven Key Areas (including Assessment and Reporting, and Learning and Teaching) according to the following categories: Foundation, Emergent, Innovative, and Transformative. On accessing the ePotential portal, teachers can also view student and teacher work samples and professional learning resources in the various subject areas.

## Online Content

### Who develops online content?

Various state, territory, and national education department sponsored bodies develop online content for schools.

At the national level, the main body is The Le@rning Federation,<sup>65</sup> established in 2001 and with a charge to produce online curriculum materials to be made available to education systems across Australia and New Zealand.

In 2010, The Le@rning Federation was incorporated into Education Services Australia (ESA).<sup>66</sup> The new curriculum body is managed by MCEECDYA and has a strong ICT and e-learning

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<sup>65</sup> The Le@rning Federation's portal is <http://www.thelearningfederation.edu.au/default.asp>

<sup>66</sup> Education Services Australia's portal is <http://www.esa.edu.au/>

focus. ESA hosts and manages what is known as the National Digital Learning Resources Network.<sup>67</sup> In relation to its oversight of the National Digital Learning Resources Network, ESA is responsible for:

- managing and extending the national collection of digital resources
- aligning digital resources to the Australian Curriculum
- supporting sharing of digital resources between jurisdictions
- maintaining licensing and copyright for the national collection
- maintaining the technical infrastructure
- hosting of existing systems to facilitate national distribution of digital resources

Education Services Australia, in addition to the above list of responsibilities, is also involved in developing and promoting online curriculum resources related to specific curriculum areas.

- Civics and Citizenship<sup>68</sup> was designed to foster knowledge and understanding of Australia's political and legal system and the types of values and beliefs on which good citizenship rests. Resources include digital material and classroom units of work and related material that can be accessed via the Internet.
- Energising Science<sup>69</sup> was designed to develop contemporary curriculum resources and experiences that engage learners in cutting-edge science in the following areas: space sciences, gene technology, environmental sciences, biosciences and health sciences, renewable energies, and physical sciences.

All state and territory education departments are also involved in producing and delivering online material and resources. Queensland education department's My Learning Space<sup>70</sup> provides one example of a portal where teachers are able to access an "innovative range of digital resources and eSpaces for teaching and learning, collaborating and networking." ICT and e-learning are also employed by education departments to deliver what was once known as "distance education." Geographically isolated and home-based students have access to curriculum materials and resources linked to the official curriculum. One example of distance education is the Brisbane School of Distance Education,<sup>71</sup> which caters to the following types of students:

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<sup>67</sup> Found at <http://www.esa.edu.au/projects/national-digital-learning-resources-network>

<sup>68</sup> The Civics and Citizenship portal can be found at <http://www.civicsandcitizenship.edu.au/cce/>

<sup>69</sup> The Energising Science portal can be found at <http://www.esa.edu.au/projects/energising-science>

<sup>70</sup> The web address for Learning Space is <http://education.qld.gov.au/smartclassrooms/space.html>

<sup>71</sup> The BSDE's portal can be found at <http://www.brisbanesde.eq.edu.au/>

- Geographically isolated students
- **Overseas:** children of Queensland families traveling or temporarily residing overseas
- **Traveling:** children of families traveling in Australia or Australian waters
- **Medical:** students unable to attend the local school for medical reasons
- **Home Select:** children of families who choose to home school using distance education
- **School Based:** students in Government and non-Government schools who access subjects not available to them in their own school

## Are open education resources (OER) used?

State and territory schools, while being required to implement government-mandated curriculum and testing regimes and being expected to use education department sponsored curriculum resources and materials, are also able to make use of open education resources. Individual schools are required to develop an ICT and e-learning policy in relation to students accessing such material and teachers making use of such resources.

## Who purchases content?

Generally speaking, education departments and related curriculum bodies, such as Education Services Australia, provide materials and resources to schools and teachers free of charge. Schools also have their own discretionary budgets that they can use to purchase online content. Given their greater autonomy, non-government schools have greater flexibility in this area, compared to government schools.

## How is the online course quality identified and maintained?

At the state and territory levels, education departments and related curriculum bodies have their own processes for approving content and ensuring that it is relevant, useful, and effective. Such processes include ensuring that content reflects and supports government and education department policy, linking content to the approved curriculum, involving curriculum and ICT experts when developing material, trading content in schools, and undertaking independent evaluations and analysis. One example of an evaluation of e-learning and online material is Professor Peter Freebody's analysis of The Le@rning Federation's portal, undertaken in May 2005.<sup>72</sup> For large scale, national projects like the Civics and Citizenship program, it is also commonplace to establish a representative steering committee involving the various education stakeholders to manage and oversee what is being produced and implemented in schools.

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<sup>72</sup> Professor Freebody's paper can be accessed at [http://www.thelearningfederation.edu.au/for\\_jurisdictions/planning\\_reports\\_and\\_research/archive.html](http://www.thelearningfederation.edu.au/for_jurisdictions/planning_reports_and_research/archive.html)

## Who determines the quality of the online content?

Given the nature of online content and how it is produced and disseminated, it is generally the case that those responsible for producing it determine its quality and relevance to schools. One exception relates to content produced by education departments and related curriculum authorities where there is a process of ensuring that content is relevant, useful, and effective in meeting the needs of schools.

## Online Courses

### Can students move at their own pace through the content?

An important aspect of personalized learning is the belief that learning is developmental and that students learn at different rates and have different abilities and interests. As such, the ideal is one where students are able to move through online content at their own pace. As a result, learning tasks are often open-ended and reflect a developmental continuum in terms of degrees of complexity and difficulty.

### Do students interact with other students in their courses? If so, how often?

Unlike traditional classrooms, with students sitting in desks facing the front of the classroom, Australian schools are embracing open learning spaces, especially at the primary school level, where students are expected to work collaboratively and as part of a team. The nature of e-learning and online learning is such that it facilitates a range of learning styles, including online group tasks and collaborations in the form of partner work, group work (4–5), and whole class work. If required to research a specific topic, students are often encouraged to work in groups, based on Piaget’s theory that students are active meaning makers and learning through interacting and discussing with their peers is more effective than working in isolation. Cross-age tutoring and mentoring is popular in primary schools (year level 6 students will often buddy up with prep students) in order to encourage children of different ages to develop the appropriate norms of behavior and social development.

### What is the role of the teacher in the online course?

Traditionally, teachers taught in a more formal and didactic way and students adopted a more passive role. As a result of embracing a personalized learning model of pedagogy, the type of classroom interaction seen between students and teachers has changed. Teachers are now expected to be “facilitators” or “guides by the side” and the focus is on student-centered learning where students (sometimes described as “knowledge navigators” or “digital natives”) are empowered to take greater control over learning. The 21st Century Learning approach is based on the premise that students are able to articulate their passions and interests and ultimately follow them. This ensures optimum student engagement and participation and that all students’ needs are met

## How is credit awarded for online courses? How are students with special needs served and supported?

How credit is awarded for online courses depends on the age level and the nature and purpose of the online course. At grades 11 and 12 (the final two years of secondary school and immediately before students move on to work or tertiary study), there is a strong focus on formal examinations and assessment. Any online courses undertaken at this level would need to fit in with such assessment, one where students are generally graded on a 5-point scale like A to E (where E represents unsatisfactory) and much of the assessment is competitive and high-risk. Online courses would also need to be recognized as contributing to or being a part of the approved grades 11 and 12 certificate or study design.

During the years or to grade 10, assessment is less formal and less competitive, and there is a greater focus on school-based curriculum and assessment. The focus is on assessment for diagnostic purposes, and many schools — in opposition to having graded or numerical assessment — grade student work by descriptors such as “not yet achieved,” “achieved,” or “consolidating.” Unlike grades 11 and 12, where students undertake centrally approved and registered courses of study, schools at grade levels before year 10 are generally free to accredit their own courses, within broad guidelines.

State and territory education departments have generally moved away from specialist schools to placing students with special needs within mainstream school systems and classrooms. There is an increasing consensus that these students are being underfunded and, notwithstanding the provision for schools to employ teacher aids to assist with such students, that classroom teachers find it difficult to cope with the situation.

## Policy

### Who is driving online learning?

While the various state and territory education departments, related curriculum authorities, and non-government school organizations, such as Catholic Education Offices, are involved in advocating and providing opportunities for online learning, increasingly this is occurring at the national level through bodies such as MCEETYA (now known as MCEECDYA), the Council of Australian Governments (COAG), and ACARA. Such national bodies are exercising a key role in developing, resourcing, and monitoring ICT and online learning in schools.

In 2001, MCEETYA established The Le@rning Federation to produce online curriculum materials and to make them available to Australian and New Zealand schools. As previously mentioned, in 2010, The Le@rning Federation was incorporated into Education Services Australia. The new curriculum body is managed by MCEECDYA and has a strong ICT and e-learning focus. Education Services Australia’s responsibilities include:

- researching, testing, and developing effective and innovative technologies and communication systems for use in education
- devising, developing, and delivering curriculum and assessment, professional development, career, and information support services
- facilitating the pooling, sharing, and distribution of knowledge, resources, and services to support and promote e-learning
- supporting national infrastructure to ensure access to quality assured systems and content and interoperability between individuals, entities, and systems
- creating, publishing, disseminating, and marketing curriculum and assessment materials, ICT-based solutions, products, and services to support learning, teaching, leadership, and administration

In 2008, the Council of Australian Governments (COAG) endorsed the National Education Agreement that committed all Australian governments to implement a range of education policies and initiatives. The National Education Agreement makes particular reference to all governments, ensuring that schools move toward “modern, world-class teaching and learning environments, including Information and Communications Technology (ICT).”

Also, in 2008, the Curriculum Corporation, under the auspices of MCEETYA, published “Digital education – making change happen: Learning in an ONLINE world.” The booklet seeks to support and guide teachers and schools to ensure that “all schools (are) confidently using ICT in their everyday practices to improve learning, teaching, and administration.” Among the ten topics areas are ones such as “Developing, measuring, and monitoring digital literacies” and “Connecting learning beyond the school.” The publication categorizes schools as “the developing school,” “the accomplished school,” and “the leading school.”

In 2009, COAG also endorsed a plan for what is termed the “Digital Education Revolution” (DER). The aim of the DER is to assist all jurisdictions and school sectors to support “the development of technology-enriched learning environments.” (Note: the DER is one element in the Commonwealth Government’s broader “Education Revolution”). Elements of the DER include:

- providing new or upgraded ICT for secondary students in grades 9 to 12 with the intention of having a one-to-one ratio of computers to students by 2011
- providing high-speed broadband connections to Australian schools
- funding state and territory education authorities and Catholic and independent school sectors to develop online curriculum resources and digital architecture, focusing on the key learning areas aligned with the national curriculum
- supporting teachers to make effective use of ICT in teaching and learning, including a process to ensure that the proposed national graduate teaching standards “include rigorous requirements regarding the use of technology in teaching”

Microsoft is also involved in promoting and supporting selected schools to introduce digital education through its “Partners in learning” and “Microsoft Innovative Schools Program.”<sup>73</sup> Both programs are designed to support the Digital Education Revolution (DER) initiative and to facilitate networking and sharing innovative practice across jurisdictions, sectors, and schools.

## Who authorizes online and blended learning?

The various state and territory education departments and curriculum bodies develop and authorize online and blended learning. One example is the Victorian education department’s Ultranet portal, which connects students, teachers, and schools across the state. In addition to allowing parents to track their child’s progress through school, the portal is designed to promote ICT and e-learning in schools.

Students and teachers can use the Ultranet for online learning activities. Students will be able to create a learning portfolio and use online communication tools such as wikis, blogs, and discussion boards. They will be able to collaborate, communicate, and create with students from within their school and across Victorian government schools.

At the same time, as detailed above, schools across the different jurisdictions and school sectors are moving to a national approach to promoting and resourcing ICT and e-learning. As noted in the MCEETYA article “Joint Ministerial Statement on ICT in Australian Education and Training: 2008–2011,” the intention is that all jurisdictions and sectors adopt a national approach.

Ministers of education and training commit to:

National collaboration across Australian education and training jurisdictions and sectors to share resources and expertise, and to leverage existing initiatives while recognizing the importance of innovation and experimentation

National, cross-jurisdictional, and cross-sectoral approaches through the Australian ICT in Education Committee to address the ICT enablers of technology-rich learning environments: developing educators’ capabilities; access to computers and ICT equipment; secure and robust infrastructure, including broadband; systems and architectures that support access, transfer, and sharing of information within and between institutions; and affordable access to appropriate online learning resources

Australian schools, especially those in the non-government school sector, also have a degree of autonomy when selecting and making use of online and blended learning portals and resources. In relation to Catholic schools, for example, the Catholic Education Office Melbourne (CEOM) provides an online teaching and learning portal named RESource<sup>74</sup> that provides online resources and support related to teaching Religious Education in schools.

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<sup>73</sup> See <http://www.microsoft.com/australia/education/schools/partners-in-learning/innovative-schools.aspx>

<sup>74</sup> Found at <http://resource.fraynetwork.com.au/>

## Is there an accrediting organization to oversee online and blended learning?

As previously mentioned, the various state and territory education departments and curriculum bodies produce and manage their own online and blended learning resources and portals. While there is an increasing move to a national approach to ICT and e-learning, there is no “official” body that oversees and accredits online and blended learning.

While all schools have a high degree of autonomy when making use of ICT and online resources, it is the case that education departments and non-government school sector authorities publish guidelines to be used by teachers and schools when making use of the new technologies.

## Do teachers need to be certified to teach online or in a blended learning environment?

All teachers are expected to be familiar with and willing to make use of ICT and e-learning. The recently endorsed national teaching standards make specific mention of ICT and such standards relate to beginning teachers as well as those seeking continued registration. In addition to generalist teachers, many schools employ ICT experts and technicians to facilitate using the new technologies.

## How are online programs funded?

In relation to the government schools, which enroll approximately 64% of Australian students, education departments and official curriculum bodies fund online programs. All schools, government and non-government, are also free to fund their own use of online resources, within budget constraints. There are also examples of philanthropic, corporate, and industry groups funding online programs and making them available to schools. In relation to industry and corporate-funded online programs, schools have to abide by education department guidelines and regulations. For example, curriculum materials or online programs funding by alcohol, cigarette, or gambling interests are not allowed.

## What special purposes do online programs serve, i.e., for credit recovery and drop-out prevention?

Given the emphasis on utilizing ICT and e-learning in schools and classrooms, the expectation is that online learning is part of a school’s normal day-to-day routine.



# Leadership

How are leaders of online and blended learning identified and trained? Are there specific leadership skills needed to successfully oversee online and blended learning environments?

To be eligible for certification and registration, all teachers must have successfully completed an acknowledged teacher training course. To gain on-going registration, teachers must also complete a set number of hours each year in professional development and, in relation to Victoria, show evidence of meeting “standards of professional practice.”

As previously noted, Australia is moving toward a set of national professional standards for teachers, and a number of ICT-specific standards are set out defining the characteristics of graduate, proficient, highly accomplished, and lead teachers. In relation to ICT and e-learning, lead teachers are expected to:

- lead and support colleagues within the school to select and use ICT with effective teaching strategies to expand learning opportunities and content knowledge for all students
- model exemplary skills and lead colleagues in selecting, creating, and evaluating resources, including ICT, for application by teachers within or beyond the school, and
- review and implement new policies and strategies to ensure the safe, responsible, and ethical use of ICT in learning and teaching.

Schools are also able to nominate and advertise positions within their schools tagged as ICT-specific where specialist teachers are employed and expected to mentor and help other teachers.







## CHAPTER

# 10

## New Zealand Case Study

### Context

New Zealand is an island nation situated to the east of Australia in the southern Pacific Ocean, with a population of approximately 4.1 million and a land area of 240,000 square kilometers, similar in area to the United Kingdom or Japan. A third of the population of New Zealand lives in its largest city, Auckland, while another third is spread among a handful of smaller urban centers located on both the North and South Islands. The remainder of the population lives in rural towns and isolated settlements scattered up and down the two main islands and on a number of smaller, off-shore islands.

About 80% of the population is of European descent. New Zealanders of European descent are collectively known as Pākehā — a term used by many to refer to all non-Māori New Zealanders. English and Māori are the two official languages. English is more widely spoken, though the Māori language, for so long on the decline, is now making a comeback thanks to the revival of Māoritanga (i.e., Māori culture).

Contemporary New Zealand has a diverse culture with influences from English, Scottish, Irish, and Māori cultures, along with those of other European cultures. More recently, immigrants from a variety of Polynesian and Asian countries have added to this cultural diversity.

### The Education System

Schooling in New Zealand is compulsory for ages 6 through 16. There are approximately 2,600 schools spread across New Zealand, half of which have rolls of less than 150 students, while at the other extreme 75 schools have rolls of greater than 1,000 students. The schools are staffed by 45,000 teachers with an average age of 47, catering to the needs of a total of 750,000 students.

In 1989 the governance of the New Zealand education system was radically reformed. From being a relatively centralized system, it became an extremely decentralized one. Responsibility for the delivery of education at the local school level is now in the hands of the locally elected Boards of Trustees, giving schools relative autonomy on decisions regarding curriculum and resourcing. The Ministry of Education (MOE) retreated from most of its former service delivery and quality assurance roles, including handing over the quality assurance process to an independent agency, and restricted itself to policy formation and funding.

New Zealand schools determine their own curriculum at the local level. They plan their teaching and learning programs to support the needs of their particular students. The government does not prescribe what should be included but sets out its expectations in the New Zealand Curriculum Framework and the supporting National Curriculum Statements, which define the learning principles and achievement aims and objectives for each of seven essential learning areas that New Zealand schools are required to implement.

As a result, there is a great deal of diversity in New Zealand schools, reflecting the different needs, cultures, and abilities that exist in each school environment. Schools are responsible for developing their own curriculum plans, interpreting the guidance within the New Zealand Curriculum Framework to suit local contexts and needs. The MOE maintains a centralized policy formation and funding role.

## Correspondence Education

New Zealand has an egalitarian approach to education provision, with a long history of attending to the educational needs of students in rural and remote parts of the country. The New Zealand Correspondence School has been providing a correspondence education for school-aged students in rural areas for nearly ninety years, and more recently has taken on the role of providing additional courses for students in urban schools who are not able to access the range of courses they choose to study.

The Correspondence School currently has a roll of approximately 20,000 students. Nearly half of those students attend a local school but are enrolled with the Correspondence School for just one or two subjects that are not available at their local school. Students from rural and remote areas in New Zealand (those who cannot attend a local school for reasons of geographic isolation) make up 20% of the roll. The rest are students with special needs (including those with health problems, learning difficulties, or behavioral problems that have caused them to be excluded from mainstream schools), students who are transient (with parents who are missionaries, diplomats, etc.), and a small number of adult students who enroll with the Correspondence School in order to complete studies they missed when previously in school. While the Correspondence School has traditionally provided courses of study in print-and-post medium, it has more recently been developing an e-learning capability, providing all or parts of courses online, and has been a key provider of courses using the video conferencing network that has been established in New Zealand.

## Online Education

Online collaboration between schools dates back to the early 1990s with the Canterbury Area Schools Technology cluster (CASATech) and the Correspondence Schools' use of audiographics to teach classes. It was followed by Kaupapa Ara Whakawhiti Mātauranga (KAWM) (Māori boarding schools, kura kaupapa, and East Coast area schools) in 2000, whose main goal was to use video conferencing to enhance learning opportunities for their students and also to address the shortage of Māori medium subject specialists at the secondary level. OtagoNet, established in 2001, was the first of the currently active e-learning clusters to use video conferencing; it provided the model for subsequent clusters to follow. From 2003 forward, the growth of new e-learning clusters flourished.

A key enabler of the e-learning cluster development nationally was the improvement in bandwidth afforded by Project Provincial Broadband Extension (PROBE) (2002–2005). This was a joint government initiative that aimed to ensure that all schools, including the most rural and remote, had access to broadband. Also crucial factors in supporting new and developing e-learning clusters were the MOE funding of a national video conferencing bridge, investment in the development of the Virtual Learning Network (VLN) Internet services and support, and access to Information and Communications Technology (ICT) Professional Development (PD) funding.

While the government provided financial support through infrastructure projects such as PROBE and support for professional development initiatives through the MOE, the development of a vision for and implementation of these online learning clusters occurred at the local level, with collaboration between schools, principals, and community groups.

## The Virtual Learning Network

The growth of virtual learning in New Zealand has been at a grass-roots level for over a decade now, establishing itself as a recognized form of education provision for a growing number of students. The development of the Virtual Learning Network (VLN) and the Virtual Learning Network Community (VLN-C) are testament to the emerging strength of this movement in terms of human and system capability and capacity.

The VLN-C is a network of school clusters and educational institutions that collaborate to provide access to a broad range of curriculum and learning opportunities for students through online learning. There are approximately thirteen e-learning communities actively operating across New Zealand, with more schools considering joining or forming a new e-learning community. These e-learning clusters are predominately secondary and area schools (including the Correspondence School) with a focus on senior secondary curriculum. Operating alongside are VLN primary/intermediate schools (focusing on years 7/8 languages), instrumental music (offering music tuition to all VLN schools), and English for Speakers of Other Languages (ESOL). Several tertiary institutions offer a range of vocational courses to VLN schools. Te Papa, the National Library, the New Zealand Book Council, and the Department of Conservation all offer learning opportunities for students and teachers

through the VLN. Currently there are over 1,500 students, from 268 schools (just over half of all New Zealand secondary and area schools), enrolled in 258 classes through the VLN.

The VLN-C operates on the collaboration and trust of its members with the underlying principle of reciprocity and participation. All schools contribute an e-teacher and coordinators in schools for student support and participate in cluster management, often through the provision of an e-principal role. This sharing of resources, staffing, and students creates a virtual community of practice where the benefits to all involved are greater than the sum of the individual contributions. The wealth of knowledge and experience held among the members of the VLN-C will be invaluable in supporting new schools and clusters of schools and collaborating in the online learning opportunities that are available through ultrafast fiber broadband and an environment of networked schools.

In 2010, the VLN-C established itself as a charitable trust, to provide governance and coherent leadership for the growing community of VLN-C schools. In addition, the forming of the trust is part of the community's strategy for sustainability.

## Teacher Professional Development

For those who are teaching online in New Zealand schools, there is no formal requirement for training specifically in this area, nor has there been any coordinated approach to the provision of training opportunities for online teaching. Instead, the provision of professional learning is regarded as the responsibility of the local school, as a response to meeting the needs of (a) the school and (b) the individual teacher. This is highlighted in Kerry Stevens' research into how teachers in the online clusters were trained, where he found that nearly all of the research participants viewed the preparation of new e-teachers as the responsibility of the e-learning cluster in general and the e-principal in particular, with some support also coming from within the school (Stevens & Davis, 2011).

Resourcing for such programs will typically come from the school's own budget, although the MOE makes additional funding available to meet the needs that have been identified as strategically important at a national level. Since 1999, clusters of schools have been able to apply to a contestable fund for a three-year grant to help achieve professional development goals of the national ICT strategy for schools. Each cluster is then able to appoint their own advisors, coordinators, and systems technicians as required to achieve what they have determined in their business case. Where participation in a virtual learning environment is a focus of the cluster, the PD focus becomes the same.

In addition, the MOE has taken responsibility for resourcing various online professional learning forums for teachers, such as Te Kete Ipurangi (TKI), the Enabling e-Learning (EE) website, and the VLN forums that have been established. There is also a subsidy scheme to enable principals and teachers to purchase their own laptop computers, which in turn provides them with better access to these online learning opportunities.

Some of the country's universities and polytechnics have provided another avenue for teachers to advance their skills in this area by making courses available that specifically deal with online teaching, although most of these are now offered as part of a master's program and have a strong research focus.

In 2010, the MOE funded a "proof of concept" program called Virtual Professional Learning and Development (VPLD) that is designed to cater specifically to those teaching online. This program has been extended now into a full pilot, running through 2013, and is expected to become a key part of the MOE's strategy for providing professional development for online teachers.

The purpose of the VPLD program is to facilitate the design and implementation of quality VPLD for teachers and principals based on authentic and meaningful learning and teaching contexts, using virtual tools and services provided through the EE website and the VLN and TKI suite of tools. The VPLD approach involves a mentoring process, using a blended approach which models the use of online learning tools that would be used with students. Professional learning transactions are contextualized in classroom practice, thus ensuring authenticity and a consistent focus on student outcomes. The VPLD program approach provides multi-point access to ensure flexibility, relevance, and accessibility to resources. Distance is eliminated, ensuring access to specialist support regardless of location, while online environments allow the sharing of resources and practice.

The competency of online teachers is monitored in the same way as classroom teachers, through the individual school's appraisal process and the national requirement to meet the registered teacher criteria, which must be met in order to hold a practicing teacher certificate. The practicing teacher certificate is valid for three years and must be renewed with the evidence of having met the registered teacher criteria provided by the local school (usually a principal or senior staff member in larger schools). At present, the registered teacher criteria do not specifically include any provision for or reference to online teaching. Instead, the criteria are a generic prescription of requirements for teachers, evidence of which can be provided in whatever context the teacher is working, including online.

Leaders in the online clusters are increasingly seeking ways in which they can work together to establish greater levels of quality assurance for online courses, and it is expected that this will be a focus of the VLN-C in the near future.

## Online Content

The provision of online content to support teaching and learning — both face-to-face and online — is a shared responsibility between the MOE and the local schools and teachers.

A key component of the New Zealand ICT strategy for schools was the development of an education portal (i.e., TKI – the online learning center) as a major policy infrastructure initiative (Ministry of Education, 1998). TKI vision is to provide New Zealand schools with a cost-effective electronic platform to communicate curriculum and administrative materials,



enhance teaching and learning, raise student achievement, and advance professional development for school management and teaching staff.

Resources on the TKI site come from a variety of sources, including aggregations of teacher-created resources and resources submitted by schools. Other resources are commissioned by the Ministry as a part of various curriculum initiatives and professional learning and development (PLD) contracts, while yet others are aggregations of existing sites and resources that have been selected and quality assured for use in the New Zealand curriculum context.

From 2001, the New Zealand MOE has contributed to The Learning Federation Schools Online Curriculum Content Initiative, an Australian project focused on the production of high-quality online learning objects to support all areas of the curriculum. These objects are now available in New Zealand through the TKI portal.

Since the development of TKI, other websites and communities have been initiated and supported by the MOE, each focusing on a specific area of curriculum or activity within the sector.

A key part of this development has been the VLN website, beginning initially in 2003 as a course brokerage site supporting the VLN-C schools, with some links to professional development, but now growing to become the main online community portal for New Zealand teachers, including those involved in teaching courses online.

Interest in and the use of open education resources has begun to attract interest among New Zealand schools in the past two to three years, supported in part by the development of WikiEducator, a project started as an initiative of the Commonwealth of Learning, which is now based in Dunedin and works in collaboration with the Open University (UK) and Athabasca University. WikiEducator is an evolving community intended for the collaborative planning of education projects linked with the development of free content and building open education resources (OERs) on how to create OERs. An increasing number of New Zealand teachers and schools are now contributing to and making use of the resources on WikiEducator.

## Online Courses

The responsibility for the development of the learning sequences and online courses rests mostly with the teachers themselves. Just as classroom-based teachers take responsibility for developing the learning experiences around the resources they use, the online teachers are responsible for creating their own online courses in whatever learning management system (LMS) or similar software they use, incorporating the online content that is available from the various locations listed above.

Courses developed for the VLN tend to be aligned with the timing of face-to-face courses, taking into account school timetables and exam schedules, etc. In addition, the VLN

courses generally consist of one synchronous session per week, with approximately three hours of scheduled asynchronous support and self-study, which means that they run in parallel to the face-to-face classes and timetables. While the VLN courses were originally strongly tied to the use of video conferencing, increasing use is now being made of a variety of asynchronous technologies, thus increasing the flexibility in terms of timing for participation.

Courses offered by Te Kura (i.e., the Correspondence School) are generally more flexible, with the start and finish times being determined by the needs and circumstances of the learner. Only some of the Te Kura courses are provided in an online environment, although much of the teacher support for the traditional correspondence materials is now provided online.

Online teachers tend to adopt similar roles as their face-to-face counterparts — from being responsible for the design and development of the lessons and programs, to the teaching and support functions, and the assessment and reporting on student achievement.

The increasing use of synchronous technologies, in the VLN and by Te Kura, is promoting a greater degree of communication and interaction among and between students. This is being encouraged at a range of levels and is overflowing into participation in the range of asynchronous environments provided by the schools and provider organizations — and within the range of social networking environments maintained by the students themselves.

Online courses provided in the school sector in New Zealand generally parallel what is happening in face-to-face classrooms, and as such, are subject to the same quality assurance processes in terms of course approvals, and also to the same assessment regimes.

There is currently no national initiative to coordinate the provision of online courses, apart from the brokerage dimension of the VLN. Consequently, each school and/or cluster has the responsibility for developing and maintaining their own suite of courses and online offerings. The same diversity can be found in the range of learning management systems that are used for the delivery of these courses, with many schools hosting and managing their own — although there are currently two Ministry-funded initiatives that may support a more coordinated approach to this.

One initiative involves the development of a system that allows for the aggregation and sharing of courses hosted in various instances of Moodle around the country, so that these courses can be accessed by students as if they were in the instance hosted by the institution they are enrolled with, but which are in fact being provided by a third party.

The second initiative involves the plan to implement a Managed Network for Learning across the country, enabled by the roll-out of an ultrafast broadband network to all schools. The Ministry is currently exploring the option of providing a range of services, including the possibility of a LMS, within the VPN for schools over the Ultra Fast Broadband network.

# Policy

Online learning has been driven, in the most part, from the grass roots in New Zealand. That is to say, the primary drivers have been at the local school or cluster level, led by local school principals and senior staff, and supported in many cases by local communities, businesses, and other funding agencies. Because of the autonomy granted to schools under the 1989 Education Act, they have the authority to plan, implement, and manage the delivery of curriculum for their students in whatever way they deem appropriate, but within the broader bounds of their charter and the Ministry of Education's National Education Guidelines (NEGs) and National Administration Guidelines (NAGs).

Because of this grass roots development, teachers who begin to teach online are not required to undertake any specific training or to demonstrate any particular skills or competence as online teachers, apart from whatever the local school or cluster may require. In recent years, there has been a growing interest in providing some coordinated support and quality assurance for e-teachers through the funding of e-principals in some clusters and through the collaborative efforts of the VLN-C.

The MOE did support the development of a handbook to provide guidance for school principals and boards of trustees as they establish and maintain online learning clusters (referred to as Learning Communities Online, after which the handbook is titled). This handbook has recently been updated and is supported by a website that provides links to a range of resources that have been contributed by the community to assist others and avoid any "reinventing of the wheel." While the handbook provides detailed advice and guidance for clusters, based on the experience of more-experienced clusters and drawing on international best practice, it does not claim the status of any policy.

While the MOE is providing support for virtual learning in a number of ways, including the Learning Communities Online (LCO) handbook, there is a growing need for further coordination and support at a national level — most particularly in the policy and strategy areas. Currently, all provision of online education in the school sector is covered by the same policies and procedures as face-to-face education.

The issue of resourcing is one area where the policy tensions can be seen clearly. The current funding models for schools are based on the notion of students physically attending a single school site for their education. There is currently no provision for easily disaggregating the amount allocated for students and then sharing the funds across the various institutions that may be contributing to their program of learning. Similarly, there is no easy way for teachers to be reimbursed for their online teaching, as this funding is also allocated on the assumption that teaching is done in a face-to-face setting with a group of students.

As a result, schools in the VLN-C have developed a range of strategies for sharing the costs associated with online teaching. Most commonly they refer to the principle of "reciprocity," where schools are encouraged to participate as both contributors to and beneficiaries of the provision of online courses.

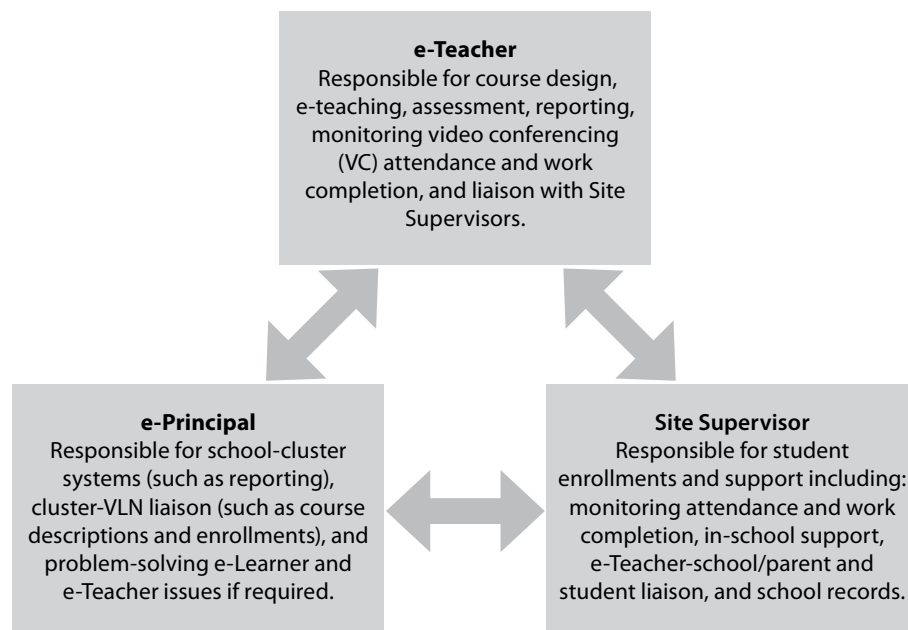
Clusters within the VLN can access funding in addition to their MOE bulk funding from a variety of sources, including local trusts, business sponsorship/partnership, and contestable funding streams available from the MOE.

Te Kura is a separate case, having been established in the 1920s and accorded special status under the Education Act. As a result, Te Kura is covered by separate policy and has special requirements in terms of the learners it must cater to. This includes a large number of students with special needs, students who have been excluded from school, and students who are facing special issues or barriers to learning in their local school.

## Leadership

Leadership for the development of virtual learning has rested within the local clusters to date. One of the earliest e-learning clusters consisted of a group of nine secondary schools in rural Canterbury, on the South Island. In the early 1990s, these schools were being threatened with closure as their roles were diminished, and as their roles were diminished teachers left, and as more teachers left there were fewer specialist subjects available, and so more students left — it became a downward cyclical pattern. In response, the principals of these schools banded together to establish the Canterbury area schools technology cluster (CANTAtech) and set about providing courses among and between the schools using a combination of audio conferencing and audiographics technology. This typifies the sort of leadership that led to the development of many of the virtual learning clusters that now exist in most parts of the country.

In response to the growing demand from the cluster schools to support the leadership within the clusters, the MOE funded a national program of e-principal support from 2008 to 2009. Their role was to act as a leader across all of the schools in the cluster, providing coordination, leadership, and support for the e-teachers in each school. The diagram below, taken from the work of Michael Barbour (2011), illustrates the relationship.



In his 2010 research, Stevens also noted that participants identified e-teachers, site supervisors, and e-principals as the key professionals responsible for monitoring and supporting e-learners in their learning, with much lesser roles also being identified for Principal's New Zealand Quality Assurance Nominees, principals, and parents (Stevens & Davis, 2011).

These leaders of online and blended learning are thus identified and trained within their local clusters. The VLN-C has an evolving role as a national coordination group, with their aims being to provide more leadership and to promote the development and professional growth of the e-teachers. Some of the clusters have formed relationships with local universities to link with professional learning opportunities, get support in leadership development, and be supported in an academic approach to researching their own practice.



## Links

Learning Communities Online (LCO) Handbook, a support handbook for cluster schools by the Ministry of Education: <http://www.vln.school.nz/lco>

Te Kete Ipurangi, the online resource site for teachers in New Zealand:  
<http://www.tki.org.nz>

WikiEducator: <http://www.wikieducator.org>

Teacher Criteria: <http://www.teacherscouncil.govt.nz/rtc/rtc.stm>

The Le@rning Federation Schools Online Curriculum Content Initiative:  
<http://www.thelearningfederation.edu.au/default.asp>







## CHAPTER

# 11

## Conclusion

*One of the challenges in producing a volume such as this is the difficulty in generalizing operational terms across international boundaries. Many of the case study authors cautioned that the questionnaire used to collect data employed numerous terms that are primarily used in the United States, but were foreign to these authors. For example, the term “online learning” does not necessarily convey the same meaning in these countries as it does in the United States. Two illustrations of this were in the China case study, where the term “online learning” was interpreted as any practice of learning that uses the Internet, and in the Australia case study, where the terms “blended” and “online learning” were used to refer to any form of technology integration. While this challenge remains outstanding, one positive feature of this report lies in the portrait it has helped to paint of the way technology is used in education across much of the globe.*

*Despite the lack of common terminology, there are three over-arching themes that can be taken from these nine case studies.*



## Lack of Opportunities . . . But Growing

There appeared to be limited online learning opportunities for K–12 students in most of the countries featured in this volume. For example, Turkey reported that online learning was still focused on at the post-secondary or higher-education level. In the United Kingdom, very few students had access to online learning, or it was typically used for supplementary purposes or to support homebound students and students with special needs. Yet, at the same time there was some evidence to suggest that the opportunities for learning online were expanding for the K–12 sector. Furthermore, in the United Kingdom, the emergence of public and private sector partnerships were responding to a growing demand for K–12 online content.

However, the pace of this growth varied across all of these countries. Singapore seemed to be on the forefront of this growth. It was proactively engaged at a national level to blend online learning in the classroom for its youngest learners. Using one-to-one laptops, they were able to engage students in individualized learning and had set forth a mission to foster a cultural mindset that was supportive of preparing students for a “collaborative and technologically savvy society.” Hong Kong’s national policy seemed to be tracking along a similar initiative, with the goal to shift paradigms from a textbook-based and teacher-centered mode to a more interactive and learning-center mode, and was emphasizing the need to adopt to a new era. But they were much farther behind Singapore and had experienced several setbacks in their development.

On the completely opposite end of the spectrum was India, which was still grappling with high illiteracy rates and poor Internet access. Additionally, while some countries (such as Turkey and China) had sufficient Internet access for urban areas, it was much lower in the rural areas. These obstacles were clearly impeding the dissemination of K–12 online learning opportunities.

## Lack of Awareness . . . But Making Advances

A number of countries reported that there tended to be a lack of understanding or awareness of the benefits associated with online learning among the general public and politicians. In the United Kingdom, it was cited the lack of empirical evidence on the benefits for K–12 online learning as a cause for receiving little support. Some teachers had been reluctant to join the online learning movement because of a lack of financial support and time available to develop professional skills in using technology.

On the other hand, several countries reported that teachers were taking the initiative to integrate technology into their teaching practices. For example, in Hong Kong, nine out of ten teachers participated in one of its largest educational websites in order to make use of licensed materials and other online resources for the classroom. In Singapore, teachers were forming online learning communities for the purpose of building their own skills and knowledge in this area. Additionally, both of these countries reported national directives supporting a change in the cultural mindset toward support of online learning opportunities for K–12 students.

## Lack of Leadership . . . But Taking Initiative

Many of the case studies reported an inconsistency in the way online learning was developed, used, and regulated. This suggested that K–12 online learning was possibly fragmented for many students and lacked the general guidance typically found in more mature systems. This was found even in some of the more advanced countries, at least in terms of their K–12 online learning development. For example, both Finland and Singapore reported that there were no governmental licensing requirements or special credentials to teach online. On the other hand, teachers in these countries tended to proactively seek out or develop content to suit the needs of their students and to participate in training on their own to further their own technology skills.

While funding for online learning initiatives typically occurred at the national level, the majority of case studies suggested that local entities drove procurement or development of online learning resources. As an example, in New Zealand, the national government provided much of the funding and/or support systems for online learning, but the localized technology or e-learning clusters provided K–12 online learning opportunities. In Finland and Turkey, teachers or local entities took the initiative to develop and implement online learning schemes. Yet in India, where the government provided no formal online programs or guidelines, the private sector had jumped in to serve the growing demand for supplemental education. A similar development had occurred in China, where the private sector was responsible for much of the K–12 online learning that was occurring.

Professional development was typically provided by universities, as was the case in Finland, Singapore, and the United Kingdom. However, in India, the private vendors of online content continued their leadership and were the group that usually provided professional development.

## Lessons Learned . . .

Overall, these nine case studies revealed that online learning for K–12 is as diverse as it is complex. Where some countries seemed to be at the forefront of using technology and online learning to benefit young learners, others still struggled with providing adequate Internet and computer access to their citizens (including their K–12 students).

Across most of the countries, the lack of national guidelines, standardized quality assurance schemes, and online teaching training programs seemed to confound the growth of online learning at the K–12 level. At the same time, national policies supporting the use of technology for K–12 education and the autonomy provided by national governments to local schools and districts seemed to facilitate the implementation of learning technologies that best suited the needs of a given community. Teachers in many of the case studies had taken it upon themselves to gain the skills and knowledge necessary to integrate technology and online learning tools into their classrooms. In some instances, universities and for-profit entities provided additional professional development.

Finally, the examples presented in these case studies demonstrated a growing demand for online learning opportunities at the K–12 level, which was being met through a variety of national, local, and private sector options. Perhaps the next step in aiding the growth of online and blended learning opportunities for K–12 students could be facilitating a more general understanding of operational terms, followed by the building of a consensus for general standards and teaching guidelines to effectively integrate online and blending learning opportunities for K–12 students across the globe.





The graphic for Appendix A features a stylized star on the left, composed of several overlapping triangles in shades of gray. To the right of the star, the word 'APPENDIX' is written in a bold, black, sans-serif font. Below it, a large, white, serif letter 'A' is centered within a vertical gray bar. To the right of this bar, the title 'References by Chapter' is written in a large, black, serif font.

## APPENDIX

# A

## References by Chapter

### Chapter 2: China

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## Appendix

Working Group on Textbooks and e-Learning Resources Development of the Education Bureau 2009 Report

### Summary of Views from Student Forums

- E-learning resources were more effective for art students, because they found it rather difficult to borrow certain books from the library, which however were readily available on the Internet. Moreover, e-learning resources allowed students to study anytime and anywhere, making learning more interesting and thus increasing students' opportunities in class participation. However, some students showed concern that e-learning resources only aroused students' interest in the learning mode, rather than the subjects. Also, the accuracy of online information could not be guaranteed. These teaching materials needed to be monitored properly.
- Some speakers suspected that the wrong allocation of resources was the cause for the failure of effective implementation of e-learning, in spite of the \$7.1 billion government investment. However, some pointed out that the mature development of computer software showed some results of the government's investment. A lack of promotion and inappropriate use by teachers were believed to be the reasons why e-learning resources were not popular. The effectiveness of e-learning resources depended on how teachers used the materials. Most teachers only



displayed the PowerPoints and failed to take advantage of the interactions and communication facilitated by the use of e-learning resources. Some students suggested that the implementation of e-learning should begin with encouraging students to participate, instead of the learning mode adopted by teachers. Students should not just follow the learning contents taught by teachers but should lead their own learning.

- Students pointed out that the government should actively promote and establish a culture of using e-learning resources. At present, parents often incorrectly perceived students' use of the computer as "playing." But some students stated from their experience that, although it was convenient to use e-learning resources, if students did not make good habits of using the computer, using e-learning resources might become an excuse to use computers just for fun.
- Students stated from their experience that they used an electronic whiteboard during lessons, but they had technical difficulties such as pen-touch problems. Furthermore, if many people used e-learning resources at the same time, the server would fail to work. Therefore, e-learning resources needed sufficient technical support.
- Students were worried that the current teacher training had placed too much emphasis on IT and had overlooked solid subject matter knowledge. They thought that the government should strengthen its support in this area.
- Students opined that software features, such as auto-correct and grammar check, should be further studied and developed so as to prevent students from cheating, particularly in examinations.
- Using the computer for a long period of time would lead to health problems. If the use of computers started from primary schools, the impact would be even more far-reaching. Therefore, users should have good protection of their eyes when using e-learning resources.
- Speakers showed concern about issues related to intellectual property as a result of the use of e-learning resources and the use of pirated software; therefore, copyright issues must be addressed when developing e-learning resources. One of the issues to be studied would be the illegal downloading of online textbooks.
- Regarding environmental issues, some students agreed that e-learning resources would reduce the use of paper, but others disagreed because most teachers and students would print out materials for classroom use or for revision; whereas, conventional textbooks could be used again. Besides, computer hardware used for e-learning resources would require constant updating, resulting in electronic wastes. Relevant authorities should consider how to solve these problems. Also, students worried that software producers would shorten the usage period of e-learning resources for users, which would increase profits to the producers. This, in turn, would increase the burden of users.

- Students suggested that teachers and schools should process and make good use of e-learning resources according to their specific needs so as to promote better teaching. Schools could decide whether they would use e-learning resources, and the government should not make the implementation of e-learning mandatory.

### Summary of Views From Open Seminars

- The participants worried that low-income families would not have the ability to cope with the costs for electronic devices, such as computers, software, and the like. Moreover, electronic resources would require regular updating, which would substantially increase parents' financial burdens. It was suggested that schools should provide the resources to schools.
- It was considered that the development of the existing e-learning resources was not mature enough; more research would be required. Prior to the implementation of e-learning, it would be necessary to conduct in-depth analysis and take into account schools' cultures, teachers' abilities, parents' abilities, and the technical and maintenance problems of e-learning resources, to name a few. Students should be taught in accordance with their abilities and aptitude. More training should be provided for teachers, or even parents. Moreover, efforts should be made to reduce the unexpected technical problems in class so as to avoid delaying the teaching progress.
- Individual attendants worried that the use of e-learning resources might involve copyright infringement issues. Furthermore, it was suggested to introduce the development of e-learning resources by other business sectors or organizations as well, so as to avoid publishers from monopolizing the market.
- A common e-learning platform should be set up for schools to create their school-based e-learning resources, as well as facilitating cross-referencing and optimising educational resources among schools.
- It was considered that educational experts, teachers, parents, and the public should collaborate in order to create and compile the content of a student encyclopedia, somewhat similar to that of the popular online wiki.
- E-learning resources could enhance students' learning interest, increase the interactions between teaching and learning, help students to learn and acquire knowledge, cater to students' different capabilities, and assist them in developing their abilities. However, it was suggested that careful monitoring of the content and quality of e-learning resources would be needed. E-learning resources should be used in conjunction with textbooks.
- Using e-learning resources continuously for a long period of time would have adverse impact on students' eyes, spine, etc. Furthermore, how to manage students' browsing of appropriate information on the Internet was also an issue of concern.

## Chapter 4: India

### List of Survey Respondents

1. Ankush Bansal, Indus Learning
2. Jyoti Swaroop, Freelance Education Consultant
3. Srinivas, Everonn Education Limited
4. Harman Singh, Educomp – WizIQ
5. Osama Manzar, Gyanpedia
6. Ninad Vengurlekar, ILFS-ETS
7. Sunill Nigandhi, Gurukul Online Learning System
8. Neelam Anand – IIFS-ETS
9. Representative from National Knowledge Commission
10. Representative from National Institute of Open Schooling

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## Chapter 7: Finland

### Interviews

Kaisa Vähähyppä, Head of Unit, Counsellor of Education, at Finnish National Board of Education

Kari Mikkilä, eLearning specialist

## Chapter 8: United Kingdom

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The graphic for Appendix B features a stylized star on the left, composed of several overlapping triangles in shades of gray. To the right of the star, the word "APPENDIX" is written in a bold, black, sans-serif font. Below it, a large, white, serif letter "B" is centered within a vertical gray bar. To the right of this bar, the title "Survey, Emails and Case Study Questions" is written in a black, serif font.

## APPENDIX

# B

## Survey, Emails and Case Study Questions

### Survey

#### SURVEY INSTRUCTIONS – PLEASE READ CAREFULLY!!!!

The purpose of this survey is to learn how your country is using online learning in public education (ages 5-18 years). We want to know about the availability of online learning to public school students, the types of online learning programs available, some information about the types of students using online learning and the policies governing its use.

Online learning, which we define for the purposes of this survey as “education in which instruction and content are delivered primarily via the Internet”, is changing public education in many countries around the world. We want to know how it might be changing education in your country.

Here are just a few examples of how online learning is being used:

1. A student has a medical problem and must stay home for 6 months. During that time, the student continues his schoolwork through online courses he can access on the internet from his laptop at home.
2. A student lives in a rural area where there are no teachers available to teach calculus. The student decides to take calculus through an online course rather than take an alternative math course at her school. The school recognizes, and funds, this course for credit towards her degree.



3. A class of biology students attends a traditional classroom with a live teacher who provides instruction directly as well as through online coursework that the students can access on computers both in the classroom during class time and at home (this is known as blended learning).

There are other examples you might identify in your research to complete this survey.

Please review these definitions prior to taking the survey and refer to them as needed when a question includes one of these terms:

Online learning - education in which instruction and content are delivered primarily via the internet. Internationally, a variety of terms are used to describe online learning--including distance education, virtual schools, virtual learning, e-learning, electronic learning. In general, the common theme is that this type of learning takes place over the Internet.

Blended learning - learning that combines two modes of instruction, online and face-to-face, but at potentially different points in time; often called hybrid learning.

Quality standards - A set of benchmarks or indicators for courses, teaching, professional development, programs, etc., developed by a governing body, association, or accrediting organization.

Open Education Resources (OER) - digitized materials offered freely and openly for educators, students and self-learners to use and reuse for teaching, learning and research.

## Question Review

Use this sheet to review the questions and to prepare your answers. When you are ready to submit your answers, use the online link provided in your approval email.

1. Are government-funded online or blended learning programs available for any primary and secondary education students in your country? Yes or No. [If no, skip to question 22.] If yes, please briefly describe the types of programs available.
2. Do public education authorities have a master strategic plan or report of progress on online learning in your country? Yes or no (If yes, please provide a brief summary of plan or report and provide links to websites, if available.)
3. Please select the statement that best describes the availability of online learning to students in your country.
  - a. Online learning options are available to some students
  - b. Online learning options are available to most students
  - c. Online learning options are available to all students

4. Please select the statement that best describes the availability of blended learning to students in your country. Keep in mind that blended learning is a type of online learning (see definition under survey instructions).
  - a. Blended learning options are available to **no** students
  - b. Blended learning options are available to **some** students
  - c. Blended learning options are available to **most** students
  - d. Blended learning options are available to **all** students
5. How many students are participating in online learning? Please provide estimated student enrollments and percentage of total student population, if available.
6. How would you describe students who use online learning in your country? Please select all that apply.
  - a. Rural students
  - b. Suburban students
  - c. Urban students
  - d. Students attending small schools
  - e. Students attending large schools
7. Please select all that apply in your country:
  - a. Online learning provides more course options for rural students
  - b. Online learning provides courses not available at student's assigned school (such as specialized courses, teacher shortage, etc.)
  - c. Online learning provides courses for medically-homebound students
  - d. Online learning provides credit recovery (for students that fail the course the first time and must re-take it)
  - e. Online learning provides students with options when they have scheduling conflicts
  - f. Online learning provides options for students that must work to support their family
  - g. Online learning provides options for students with special needs
  - h. Online learning provides options for students who travel (athletes, actors, etc.)
  - i. Online learning provides more course options for gifted students
  - j. Online learning provides options for students to take college-preparatory courses
  - k. Online learning provides options for students to take college-level courses for college credit
  - l. Online learning provides additional benefits to students (Please list):

8. Are there special training requirements for teachers to teach online? Yes or no. (If yes, provide link to a website to view requirements or list requirements here.)
9. Are current teachers trained in online teaching for students?
10. Are new teachers trained for online teaching prior to their first day on the job?
11. Who is training teachers in the use of online learning resources for their students?
  - a. Local schools
  - b. Regional centers
  - c. Universities and colleges
  - d. Other (Please explain)
12. Does the government have licensing requirements or require a special credential to teach online?
13. Are there quality standards for online teaching? (Please provide a link, if available.)
14. Who develops online content and courses? Please select all that apply.
  - a. Private companies develop content
  - b. National government develops content
  - c. Local government develops content
  - d. Universities or institutions of higher education develop content
  - e. Teachers within the school develop content
  - f. Open education resources (content and learning materials funded by non-governmental organizations/foundations for sharing and reusing)
  - g. Other (please explain)
15. Are there quality standards for online courses? Yes or No. (Please provide link, if available.)
16. What are the primary obstacles to the growth of online learning in your country? Please select all that apply.
  - a. Lack of policy or policy barriers that limit access to online courses for students
  - b. Lack of funding for professional development and teacher training (resulting in shortages of qualified instructors trained to teach online)
  - c. High costs of online course development
  - d. Lack of Internet access and technology for students
  - e. Other (please list)

17. Who pays for online learning courses? Please select all that apply. Please provide an explanation as well.
- a. National government
  - b. Local government
  - c. Students/parents
  - d. Other:
18. Does your country calculate a school's funding based only on how long students are in a physical classroom setting, otherwise known as "seat time?" Yes. No. If no, how is funding calculated?
19. Do private enterprises partner or participate in government funded online learning programs in your country? Yes or no. If yes, please explain how they are involved.
20. Which technologies are students using to access online/blended courses? Please select all that apply.
- a. Mobile phone
  - b. Smartphone
  - c. iPad
  - d. Tablet Computer
  - e. Netbook Computer
  - f. Laptop
  - g. Desktop computer
  - h. Other device (please list)
21. What is the rate of growth for online learning in your country over the past 10 years (measured as an increase in the percentage of total student population accessing some form of online learning)?
22. If your country has resisted the use of online learning in public education, what are the one or two main reasons for doing so?
23. Are online learning programs available in the private sector? If so, please provide examples (names of providers, websites, program names, etc.).
24. Please add any other comments that you would like to make about online learning in your country. If possible, please provide your views on the most promising approaches to online learning in your country and any trends or growth areas you've identified. You might also include a summary of future plans for online learning development.

## Additional Background Information

Please list your country/nation: \_\_\_\_\_  
(Important)

E-Learning Contact Person: \_\_\_\_\_

E-mail: \_\_\_\_\_ Phone: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

Are there experts in your country who you can recommend for speaking at international meetings about online learning in your country? Please include name and contact information.

Presenter name: \_\_\_\_\_

Contact information: \_\_\_\_\_

Presenter name: \_\_\_\_\_

Contact information: \_\_\_\_\_

Presenter name: \_\_\_\_\_

Contact information: \_\_\_\_\_

# Email Template

Dear XX,

Your country has been identified as a subject of interest for an international assessment of online learning in youth public education (ages 5-18 years).

The goal of this project is to assess the policies, practices and growth of the use of online learning around the world. We are asking local researchers to author case studies on this topic guided by a series of case study questions I've attached. The methodology is a case study in narrative form. We are hoping to have these case study questions answered for a subset of about 12 "target" countries (your country being one). Each case study author will also be asked to complete a survey that is also being administered in dozens of other countries. The survey questions are also attached with instructions for your review and the responses can be submitted online.

It's possible not all case study questions will be applicable to the circumstances in a particular country. We invite you to identify the areas where the most substantive results and information are available. If particular areas represent richer subjects of study, these can be emphasized in the paper while other areas of less relevance can receive minimal treatment.

Whenever available, we are interested in seeing data and other evidence for your claims, however interviews with education authorities are acceptable in the absence of published data or other information.

Thanks again for taking the time to review this opportunity. Please let me know what questions you may have.

# Case Study Questions

The subject of interest is public education for youth (ages 5-18 years) and how online learning is practiced or used in your country. Note that the private sector may play a very important role in the provision or administration of online courses and content. Please answer these questions as thoroughly as possible with relevant data, if available. The completed case study should be submitted in narrative form with references and website links where applicable.

- Teacher professional development
  - Who trains teachers to teach online?
  - What are the requirements for teaching online?
  - What are the requirements for teaching in a blended environment?
  - How are online teachers monitored and determined to be “highly qualified”? Are there specific skill sets that are needed in online teaching that need to be developed in order to be considered “highly qualified”?
- Online content
  - Who develops online content?
  - Are Open Education Resources (OER) used?
  - Who purchases content?
  - How is online content approved or quality assured?
  - Who determines the quality of the online content?
- Online courses
  - Can students move at their own pace through the content?
  - Do students interact with other students in their courses? If so, how often?
  - What is the role of the teacher in the online course?
  - How is online course quality identified and maintained?
  - How is credit awarded for online courses? How are students with special needs served and supported?

- Policy

- Who is driving online learning?
- Who authorizes online and blended learning?
- Is there an accrediting organization to oversee online and blended learning?
- Do teachers need to be certified to teach online or in a blended learning environment?
- How are online programs funded?
- What special purposes do online programs serve, i.e. for credit recovery, drop-out prevention?

- Leadership

- How are leaders of online and blended learning identified and trained?
- Are there specific leadership skills needed to successfully oversee online and blended learning environments?







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