Foreword

This book is best read from within a broad developmental context. The focus of the book is on ICT policy and educational change in Singapore. But these developments are part of a larger, perhaps more important story of Singapore and the role that policy and human capital development can play in growing an economy and creating prosperity in developing countries — a story with many important lessons for policymakers.

It may be hard to believe today, as one walks past the shops and digital marquees on Orchard Road, but a mere 40 years ago Singapore was a developing country. When Singapore first separated from Malaysia in 1964 to become an independent nation, it had an unemployment rate of 14%[1] and its GDP was only 3.7 billion in constant US$2000, according to World Bank figures. With a population of only 1.1 million people, little land and no natural resources, it was not clear at the time that this small city-state would be viable.

Yet Singapore has come to have a highly developed and successful free market economy which has experienced significant growth over the past several decades. According to *The Economist*, Singapore ranks as the

[1] Brown, P and H Lauder (2000). *The future of skill formation in Singapore* (Working Paper Number 3). Cardiff: School of Social Services, Cardiff University.

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world's 43rd largest economy, with a gross domestic product of 112.7 billion in constant US$2000 in 2005, according to the World Bank. It was ranked as the world's 7th most competitive economy by the World Economic Forum in 2007. And *The Economist* ranks Singapore as 11th, world wide, in quality of life.

The government's initial economic strategy was to develop a labour-intensive, export-driven industrial economy. Through the 1960s and 1970s, Singapore was considered to be a reservoir of cheap labour. Government investments in infrastructure (including the development of port facilities, airport, roads, and telecommunications) created a favourable climate for labour-intensive, low value-added, entrepot economy. Leveraging initial gains in the economy, the government pursued a growth trajectory that has moved from low value-added export to high value-added manufacturing and services. In 2003, the cross-ministerial Economic Review Committee issued a report that recommended a number of measures to promote sustainable economic growth. In addition to recommending upgrades in the existing industrial clusters of electronics, chemicals, biomedical sciences, and engineering, it promoted the development of new clusters, such as micro-electromechanical systems and nanotechnology, and new exportable services in areas like healthcare, education, and creative industries. Significantly, the government also recognised a third factor needed to sustain its economic growth — knowledge creation and technological innovativeness. As a result of these policy decisions over the decades, Singapore's GDP grew at an impressive average annual rate of 7.8%, between 1965-2005, according to World Bank figures, and it has moved from a low-value entrepot economy to a high-value knowledge economy.

Singapore's education policy is strongly linked to the development of human capital.[2] From the beginning of Singapore's modern economic development, Singapore built up a strong education system to supply a literate labour force with a reasonable knowledge in basic numeracy. The government tasked the education system to supply targeted clusters with

[2] Ashton, D, F Green, J Sung and D James (2002). The evolution of education and training strategies in Singapore, Taiwan, and S. Korea: A development model of skill formation. *Journal of Education and Work*, 15(1), 5–30.

skills necessary for their labour force. Anticipated skill needs were translated into production goals for Secondary, Polytechnic, and University institutions. As the initial, low-wage, export-based strategy achieved full employment and the development policy shifted toward high value-added production, the government upgraded its education requirements. Secondary schools were to produce higher levels of skills in Science, Mathematics, and Language and Tertiary institutions were to produce more engineers and scientists. The most recent shift to a knowledge economy development strategy has resulted in yet another set of economic development-driven changes in Singapore's education system.

As well documented in this book, the Education Ministry has instituted a number of reforms under the title "Learning to Think, Thinking to Learn: Towards Thinking Schools, Learning Nation". An important component of the reform has been to create a better balance in the curriculum between the acquisition of factual knowledge and the mastery and applications of concepts, and the development of individual curiosity, creativity, and enterprise. Thus the curriculum was broadened beyond a set of core skills and values to include information skills, thinking skills and creativity, communication skills, knowledge application skills, self-management skills, and character development. To develop these skills and attitudes, cross-discipline project work was introduced into the classrooms. Assessment was revised to measure students' skills in analysing and applying information, thinking, and communicating. The plan also strengthened the connections between the school, the home, and the community, as part of a larger social development plan that encouraged a more active participation of citizens in community life. Also documented herein, is the important role that ICT has played in these reform efforts.

There are many important lessons that policymakers can draw from the Singaporean experience and from this book that can help connect the use of ICT to education reform and to economic and social development. Among them are these: Well-formulated national policy is important — indeed essential — to effective use of ICT, to education reform, and to economic development. The coordination of these policies is also important, both coordination across ministries and within ministries across departments. And finally, the introduction of ICT by itself will not bring

about educational change; ICT use must be coordinated with changes in curriculum, assessment, pedagogy, teacher training, and school structure. Those who read this book will learn the details of these important lessons. I highly recommend you do.

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