Chapter 28
Information and Communication Technology in Chinese Elementary and Secondary Education:
Connecting Every Child for Better Learning

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ABSTRACT

This article provides an overview of the recent development of information and communication technology (ICT) utilized in Chinese elementary and secondary education. Specifically, the chapter discusses the positive impact ICT has on Chinese education, as well as the existing problems in the application of ICT. The potential for further developing education with ICT in schools is considered. In addition, challenges are discussed, and recommendations are made with regard to providing better learning experiences to every child with ICT.

INTRODUCTION

As the most populous developing country in the world, China has the highest demand for developing its human capital. While Chinese education has a long history, the gap between education in China and education in developed countries is obvious. In 2007 the Chinese combined gross enrollment ratio in education was 69 percent, compared with the American ratio of 92 percent, the Japanese ratio of 87 percent, and the Canadian ratio of 99 percent (United Nations, 2009). With regard to upper secondary education, in 2007 the Chinese gross enrollment ratio of upper secondary educa-

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tion was 60, compared with the American ratio of 89, the Japanese ratio of 101 and the Canadian ratio of 104 (UNESCO Institute for Statistics, 2009).

In China, grade 1 to grade 6 is elementary education and grade 7 to grade 9 is junior secondary education. Elementary and junior secondary education is compulsory and is referred to as basic education. Formal education from grade 10 to grade 12 is senior secondary education, and it is not compulsory, but the vast majority of youth in the relevant age group graduates from secondary school, or receives some senior secondary education (Ministry of Education, August 3, 2010).

Since China started a comprehensive reform in 1978 the Chinese economy has changed from a planned economy to mainly a market economy, and all kinds of market-related skills have to be imparted to students in schools, yet the education system is still quite isolated from the market. For three decades (1949 – 1978) almost all Chinese schools were funded and administered by governments at various levels. After three decades of reform and opening up to the world (1979 – 2009), today there are international schools operated by Chinese in partnership with foreigners, private schools owned and operated by individuals or non-government organizations, and cooperative schools operated by individuals or non-government organizations in partnership with governments. These schools are different from public schools, which are still the vast majority of Chinese schools. Public schools are funded and administered completely by governments.

ICT IN ELEMENTARY AND SECONDARY EDUCATION

The significant social development in China requires that elementary and secondary education be available for all children. It also requires that education be effective, efficient and engaging, as described by Spector and Merill (2008). In making elementary and secondary education available for all and in making it more effective, efficient and engaging, contemporary information and communication technology (ICT) can play a role. The rapid ICT progress may help the Chinese education system deal with the challenges brought about by the increasing demand to make education available for all and to improve the effectiveness of the education system.

Although China has a vast population, it still lacks sufficient human talent. One of the country's main strategies is to develop talent by turning its large population into an advantage, changing its economic growth model from mainly a resource-intensive and labor-intensive one to a knowledge-intensive one. To develop talent and build a knowledge economy, China needs to expand preschool education, improve elementary education and universalize secondary education. In addition, some Chinese learning facilities and teaching methods are out of date (Li, 2007). In renovating learning facilities and updating teaching methods, ICT should be helpful. The Chinese government is developing satellite and broadband-based distance learning to increase education availability, improve learning effectiveness, reduce operational costs, and provide equitable learning resources for all students.

In 1997, the Chinese Ministry of Education started a project of experimental schools for the development of educational technology. Over the years these experimental schools have made progress in building an ICT environment and in promoting the application of ICT in teaching and learning. These schools have made strong efforts to create and improve systems that apply ICT to teaching and they have also provided ICT education to all their students.

With regard to ICT application in schools, eastern regions, particularly urban centers, have an advantage over the central and western regions, since economically eastern regions are more developed, and household incomes are usually higher in urban centers (Zhuo & Luo, 2010). In 2003 the Ministry of Education decided to provide distance