Chapter 14
Information and Communication Technology in Teaching and Learning: Effects and Challenges in China

Xiaobin Li
Brock University, Canada

ABSTRACT
This chapter provides an overview of the current development of Information and Communication Technology (ICT) utilized in teaching and learning in the People’s Republic of China. Specifically, the chapter describes and discusses the effects contemporary ICT has on Chinese elementary and secondary education, as well as the existing challenges in ICT applications. The chapter also examines ICT’s application in higher education, particularly in distance education, and the issues that have to be dealt with. The chapter discusses the potential for further developing education with ICT. In addition, it makes recommendations with regard to providing better education with ICT in China.

BACKGROUND
On July 17, 2013, China Internet Network Information Center reported that about 591 million Chinese had used the Internet regularly as of June 30, 2013. This places China as the country with the most Internet users in the world. About 44 percent of the Chinese population has used the Internet, which means today Chinese use information and communication technology (ICT) more extensively in their life, including in education. With increasingly sophisticated ICT, it is easier for Chinese learners to receive distance education than before (Wang, 2010). However, when compared with the United States where about 78 percent of the population use the Internet regularly (Miniwatts Marketing Group, 2012), the gap is still great. There are also obvious gaps within China between different regions.

While proportionately Chinese lag behind developed countries in using the Internet, the increase in the number of users in the first half of 2013 is approximately 2 percent (China Internet Network Information Centre, 2013), higher than
that in most developed countries. As more Chinese
go online, the Internet has grown in importance
as a venue for business, entertainment, as well
as education. As Chinese are more involved in
international affairs, Chinese educators’ aware-
ness of internationalization has also increased,
and the interaction between Chinese educators
and international colleagues has been increasing.
China is the only country among Economic and
Social Commission of Asia and Pacific members
that has extended its commitments to liberalize
access in all five subsectors of educational services
(Raychaudhuri & De, 2007).

Chinese still spend a smaller percentage of
their gross domestic product on education than
the average level in the Organization of Economic
Cooperation and Development countries (The
World Bank, 2012). The Chinese economy is the
second largest in the world, next only to that of
the United States, but the Chinese population is
four times that of the United States. The gap in
education between China and the United States
is obvious. In 2011 the Chinese expected years
of schooling was 11.7, compared with 16.8 of
the United States (United Nations Development
Programme, 2013). The demand for education in
China is huge and the potential of the education
market is great (Wang, 2010). It is impossible for
the traditional means of education to fulfill this
important task on its own. Within China, because
of income disparities, the gap in education attain-
ment between densely populated eastern regions
and sparsely populated western regions is wide
with western regions lagging behind.

In China, formal education from grade 1 to
grade 9 is compulsory, which is referred to as basic
education. Education from grade 10 to grade 12
is not compulsory, but 85 percent of the relevant
age group was enrolled in grades 10 to 12 in 2012
(Ministry of Education, August 16, 2013). Since
China opened up in 1978, more youth receive
higher education. However, in 2012 the Chinese
higher education participation rate was 30 percent
(Ministry of Education, August 16, 2013), still
lower than that in developed countries. Besides,
many Chinese are not happy with the current provi-
sion of education, and many Chinese students are
not interested in learning (Sang, 2010). To catch up
economically with developed countries, Chinese
have to catch up educationally, when utilizing
contemporary information and communication
technology (ICT) in teaching and learning will
be helpful.

In November 2006 the Ministry of Science
and Technology and the Ministry of Education
launched the Public Service Demonstration Proj-
ect for Digital Education, hoping to advance key
information and communication technologies in
providing education to the general public and to
contribute toward the establishment of a life-long
learning system. The national government invested
substantial amounts of money to implement the
“rural distance education project” and “connecting
all villages project” to make ICT available across
the country (Sang, 2010). ICT can and should
play a greater role in meeting the huge demand
for education. In addition, per student cost for
distance education with ICT is lower than that for
face to face programs (Zhou, 2007). By September
2012 China formed the largest network education
system in the world (CIConsulting, 2012).

ICT IN ELEMENTARY AND
SECONDARY EDUCATION

Rapid social development in China requires the
continuous advancement of its education system,
in which ICT application has been increasing.
Progress in education ICT helps the Chinese
education system deal with challenges brought by
fast economic and social change and the increas-
ing demand that education be available for all. It
has been pointed out that there are problems in
the Chinese elementary and secondary education
system and it needs a comprehensive reform,
particularly a reform in its curriculum. With the
advancement of contemporary education ICT,
Related Content

International Network for Integrated Social Science
www.irma-international.org/chapter/international-network-integrated-social-science/29126/

Re/Designing Online Platforms by Citizen Designers and its Contribution to the Digital Writing and Research
www.irma-international.org/chapter/redesigning-online-platforms-by-citizen-designers-and-its-contribution-to-the-digital-writing-and-research/96068/

Keeping Track of Notes - Implications for Mobile Information and Communication Technology in Homecare Practice
www.irma-international.org/chapter/keeping-track-notes-implications-mobile/30360/

Toward Building the Knowledge Culture: Reviews and a KC-STOPE with Six Sigma View
www.irma-international.org/article/toward-building-knowledge-culture/41940/

Does the Playing Field Determine the Game?: An Impact Analysis of Structural Virtual Network Characteristics on Political Actions
www.irma-international.org/article/does-the-playing-field-determine-the-game/97665/