

INTERNATIONAL & DEVELOPMENT EDUCATION



Post-Secondary Education and Technology

A Global Perspective on Opportunities
and Obstacles to Development

Edited by
Rebecca Clothey, Stacy Austin-Li,
and John C. Weidman

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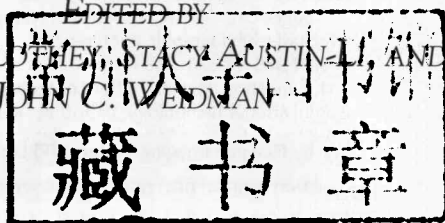


POST-SECONDARY EDUCATION
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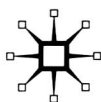
A GLOBAL PERSPECTIVE ON OPPORTUNITIES
AND OBSTACLES TO DEVELOPMENT

EDITED BY

REBECCA CLUTNEY, STACY AUSTIN, AND
JOHN C. WEDMAN



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POST-SECONDARY EDUCATION AND TECHNOLOGY

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First published in 2012 by

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175 Fifth Avenue, New York, NY 10010.

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ISBN: 978-0-230-33831-9

Library of Congress Cataloging-in-Publication Data

Post-secondary education and technology : a global perspective on opportunities and obstacles to development/
edited by Rebecca Clothey, Stacy Austin-Li and John C. Weidman.
pages cm.—(International & development education)

Includes bibliographical references.

ISBN 978-0-230-33831-9

1. Education, Higher—Effect of technological innovations on.
2. Educational technology. I. Clothey, Rebecca A., editor of compilation. II. Austin-Li, Stacy, editor of compilation. III. Weidman, John C., 1945— editor of compilation.

LB2395.7.P67 2012

378.1'7344678—dc23

2012017746

A catalogue record of the book is available from the British Library.

Design by Newgen Imaging Systems (P) Ltd., Chennai, India.

First edition: November 2012

10 9 8 7 6 5 4 3 2 1

Printed and bound in Great Britain by

CPI Antony Rowe, Chippenham and Eastbourne

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Abbreviations and Acronyms

AACC	American Association of Community Colleges
AARNet	Australian Academic and Research Network
ADB	Asian Development Bank
AICTE	All India Council for Technical Education
APDIP	Asia-Pacific Development Information Programme
APEC	Asia Pacific Economic Cooperation
BECTA	British Educational Communications and Technology Agency
CEC	Council for Exceptional Children
CHEA	Creating the Council of Higher Education Accreditation
CNE	Comité National d'Évaluation
CSLP	Centre for the Study of Learning and Performance
CTTC	Cyber Teacher Training Centre, South Korea
DBD	Digital Book Disk
DepEd	Department of Education of the Philippines
DE	Distance Education
DFAT	Department of Foreign Affairs and Trade, Commonwealth of Australia
DPA	Degree Program Advisor
eTQM	e-Total Quality Management College, UAE
EDUSAT	Educational Satellite
EU	European Union
EUROCALL	European Association for Computer-Assisted Language Learning
FDI	Foreign Direct Investments
FIPSE	Fund for the Improvement of Postsecondary Education
FYE	First Year Experience
GAA	General Appropriations Act
GAC	German Accreditation Council
GDP	Gross Domestic Product
GER	Gross Enrollment Ratio
HBMeU	Hamdan Bin Mohammed e-University, UAE

HEA	Higher Education Academy
HEI	Higher Education Institutions
ICJS	Institute of Criminal Justice Studies
ICONS	International Communications and Negotiations Simulations
ICT	Information and Communication Technology
ICT4E	Information and Communication Technology for Education
IDP	Internally Displaced People
IGNOU	Indira Gandhi National Open University, India
IHE	Institutions of Higher Education
IIT	Indian Institute of Technology
INMP	International Negotiation Modules Project
ISRO	Indian Space Research Organization
ITD	Information Technology Departments
IWS	Internet World Stats
JANET	Joint Network Team Association
JISC	Joint Information Services Council
LLAS	Languages, Linguistics and Area Studies
LMS	Learning Management System
M2M	Moving to Mathematics
MDNet	Mobile Doctors Network
MNE	Multinational Enterprise
MTS	Multimodus Teaching Strategy
NAFTA	North American Free Trade Agreement
NCERT	National Council for Educational Research and Training, India
NCES	National Center for Education Statistics
NCLB	No Child Left Behind
NEDA	National Economic Development Authority
NGO	Nongovernmental Organization
NICTE	National Institute for Technology for Education
NSDP	No Significant Difference Phenomenon
NWU	North-West University
OAC	Online Asynchronous Collaboration
OCDs	Online Course Developers
OECD	Organisation for Economic Co-Operation and Development
PG	Postgraduate
QIP	Quality Improvement Program, India
RSS	Really Simple Syndication
SABER	System Assessment and Benchmarking for Education Results

SAPA	South African Press Association
SEAMEO	Southeast Asian Ministers of Education Organization
SiMERR	National Centre of Science, Information and Communication Technology and Mathematics Education for Rural and Regional Australia
SMS	Short Message Service
TAFESA	Technical And Further Education South Australia
TRIPS	Trade-Related Aspects of Intellectual Property Rights
UAE	United Arab Emirates
UG	Undergraduate
UGC	University Grant Commission
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNESCO	United Nations Education, Scientific and Cultural Organization
UNFPA	United Nations Population Fund
UNHCR	United Nations High Commissioner for Refugees
UNIFEM	United Nations Development Fund for Women
UoP	University of Portsmouth
USAID	United States Agency for International Development
VLE	Virtual Learning Environment
WEDIS	Women's Economic Development Personal and Social Impact Survey
WGC	Women's Global Connection
WTO	World Trade Organization

Series Editor's Introduction

Technology is driving changes worldwide at an unprecedented rate in all sectors. Businesses of all sizes rely on technology for communication, management, and innovation. The Internet is the general industry and the social network platform for many businesses in the present and will be increasingly so in the future. Yet there are great disparities in access to the Internet in different geographic regions of the world and among different socioeconomic groups. Although cell phone access has made great inroads in developing country contexts, the majority of people in Indonesia, Peru, South Sudan, and Zambia still do not have access to the Internet. Of the more than 1.037 billion people who reside in Africa, approximately 140 million (13.5 percent of the population) had access to the Internet as of December 2011. This is a tremendous increase in Internet access in Africa over the past decade, yet the region still lags far behind North America and Europe, where 78.6 percent and 61.3 percent of the respective populations were able to access the Internet as of December 2011 (Internet World Stats 2012). In many ways, educational changes, including those that involve technology are rooted in higher education institutions and organizations closely aligned with universities.

Post-secondary education is a subsector that is not accustomed to succeeding in an environment of ongoing and rapid changes. Higher education institutions, especially most traditional universities, are notorious for strong bureaucratic organizational structures that are often antagonistic to technological changes. The very nature of academic freedom—which is so cherished and grounded in the sciences and is fundamental to research—serves as both a deterrent as well as a facilitator to technological changes and innovation. The dominant educational paradigm often restricts or prevents changes including those in technology (Hawkins 2007). Those higher education institutions that are able to adapt and incorporate technology into curriculum delivery, management processes, and marketing programs are often the most successful in meeting changing student needs. If post-secondary education institutions are primarily responsible for training those who enter the formal employment sector in most societies, then instructors at these institutions need to be able to provide graduates with the necessary technological skills to contribute to society. Too often,

however, students have more advanced knowledge of latest technologies than do their instructors. Such is the nature of technology access as it relates to higher education in the twenty-first century.

Open universities and distance education institutions have redefined the meaning of higher education curriculum delivery. Entire universities exist online, which include the registration and enrollment processes, coursework, examination, and granting of degrees. Those who are working fulltime but want to upgrade their skills or earn an advanced degree in their field of work often prefer to pursue a higher education degree by correspondence or entirely online.

It is within this complex technological context that we welcome *Post-secondary Education and Technology* as a volume in our International and Development Education Book Series. It is cosponsored by the Higher Education Special Interest Group of the Comparative and International Education Society and focuses on international perspectives that address challenges, obstacles as well as opportunities for the future of post-secondary education. Editors Rebecca Clothey, Stacy Austin-Li, and John C. Weidman have assembled a respected group of 25 international scholars and practitioners who have contributed 11 chapters to this volume. Even considering all the technological advancements that have been realized in recent decades, as well as the global expansion of higher education, inequalities in education persist in the post-secondary subsector. These inequalities are highlighted in this volume and include issues of gender, socioeconomic disparities, international refugees, and educational policy shortcomings. Several case studies of successes in these areas are also offered to readers. These include how to empower individuals through technology and access to higher education, and in meeting the dynamic changes of individuals and societies.

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Introduction

Education, ICT, and International Development

*Rebecca Clothey, Stacy Austin-Li,
and John C. Weidman*

Higher education has been identified in nations worldwide as an avenue for developing the local human resources and delivering the skilled expertise needed to promote economic development. This recognition has driven individuals, corporations, educational institutions, as well as governmental and nongovernmental organizations to make education a top priority.

As the global commitment to educational access has become integral in all levels of society, new technologies have also been developed that hold tremendous promise for expanding higher education's reach. The simultaneous demand for advanced education and the potential of technology to expand education access beyond national borders has resulted in previously unavailable and far-reaching, innovative ways to deliver educational programming.

The Internet and mobile communications have revolutionized the way people access and distribute information on a global scale. Distance learning, open source courseware, e-books, wikis, and many other innovative technologies have advanced education by providing the capability to connect any topic in any discipline to learners in almost any place, greatly expanding opportunities for access to post-secondary education. This new reality has generated vastly expanded possibilities for international collaboration, knowledge building, sharing of best practices, and new ways to teach—both inside the classroom and out—thereby providing the inspiration and impetus for this volume. However, even as modes of providing education proliferate, the digital divide continues to grow, raising new issues regarding effective ways in which to apply technology solutions to expand educational access and promote economic development.

This book looks at innovations in and challenges to the ways in which technology can be used to expand access to post-secondary education and

contribute to a nation's economic development, through a set of case studies and analyses written by people involved in relevant projects around the world. The book builds upon the content of two virtual symposia jointly hosted in 2008 and 2010 by Drexel University, Wainhouse Research, and the World Bank's Global Development Learning Network in Beijing. The original concept for the symposia emerged from a desire to create a worldwide community of scholars and practitioners who were committed to cross-cultural collaboration and improved educational programming, without requiring the expense of travel across continents. The symposia offered content created by educators for educators, utilizing video technology and open source courseware to provide synchronous panel discussions and live keynote lectures from international experts based in the United States, Austria, the Philippines, China, and Japan (Clothey 2010). People were able to participate live from anywhere by simply clicking a link. In addition, the Web 2.0 tools enabled interactivity, so participants could also ask questions of the experts and communicate with other participants via chat modalities. Additional recorded presentations from five continents were available for viewing comments online, and all live sessions were also recorded for on-demand playback later (Clothey 2010).

The diversity of the symposium participants indicates the potential that information and communication technologies provide for global collaboration. For example, the 2008 inaugural symposium attracted registrants from 13 countries and 5 continents. Additionally, although the symposium was held in English, participants included native speakers of English, Chinese, Spanish, Korean, and Urdu (Clothey and Austin-Li 2009). This exchange was the inspiration for presenting a set of analytical case studies that highlight technology's diverse applications in education worldwide, offering real-life examples of uses of various technologies from authors around the world. At the same time, the conclusions and recommendations in the book are research based and therefore offer practical applications for education practitioners and policy makers. Beyond focusing simply on technology use, the book is framed within the context of expanding access to disadvantaged populations to whom post-secondary education has been denied for reasons including poverty, location, and gender. Although all the cases explored in this book promote the use of technology for expanding access, the book also takes a critical look at the realities of implementing these new tools and approaches, especially in, but not limited to, the developing world.

Higher Education in the Information Age

Philip Altbach, Liz Reisberg, and Laura Rumbley (2009, i) assert that "an academic revolution has taken place in higher education in the past half

century marked by transformations unprecedented in scope and diversity.” An increase in widespread participation in tertiary education, or the massification of higher education over the last several decades, has driven many of the key transformations (Altbach et al. 2009). The United States was the first country to achieve mass higher education, with 40 percent of the traditional 18–22-year old age cohort attending post-secondary education in 1960, but most countries have increased participation rates since then. The proportion of this age cohort enrolled in higher education has grown globally from 19 percent in 2000 to 26 percent in 2007, with a total of 150.6 million tertiary students of all ages enrolled worldwide (Altbach et al. 2009).

As a result of massification, new challenges have emerged for post-secondary institutions. Much of higher education’s expansion is due to new avenues of access to higher education, which were previously closed to all but the elite. Never has the tertiary student body been so diverse in terms of age, race, ethnicity, and gender. For example, in 2009, 42 percent of US college-aged students were at least 25 years of age and 57 percent were female. In addition, the proportion of White college students in the United States has declined between 1990 and 2009 from 78 to 62 percent, while racial and ethnic minorities have increased—Blacks from 9 to 14 percent; Hispanics from 6 to 12 percent; and Asian/Pacific Islanders from 4 to 6 percent (Snyder 2011, 13). Such diversity requires new teaching strategies and learning supports, including new approaches for reaching student populations with various mother tongues.

In addition to the demands of serving more diverse student populations, the sheer increase in numbers also strains available resources in tertiary institutions. Institutions must ask faculty to teach larger classes, or hire more faculty. In fact, in many countries the average qualification for academics has declined because the supply cannot meet the demand. Altbach et al. (2009) estimate that as many as half of all university teachers in the world have earned only a Bachelor’s degree. In China, which is now the world’s biggest provider of higher education, only 9 percent of the university faculty have doctorates (Altbach et al. 2009).

The need for infrastructure to accommodate a growing student population is also a challenge for post-secondary institutions, particularly in a climate of decreased finances. Sub-Saharan Africa is a world leader in tertiary enrollment growth, having seen a 20-fold increase in the past 40 years. However, tertiary education systems there are not equipped to absorb the growing demand (UIS 2010). In India, half of the 1.2 billion population is younger than age 25, and the Indian government says the country must build 1,000 universities and 50,000 colleges within the next decade to accommodate them (Arnoldy 2012). At the same time, the worldwide shift to a knowledge economy also has led to the need for new skills in the labor

market, requiring professional development, new credentials, and retraining. Not surprisingly, post-secondary institutions are increasingly being asked to address these societal needs as well.

Nevertheless, despite broader post-secondary participation globally, not all sectors of society have benefitted equally. Students from rural and impoverished backgrounds continue to be underrepresented at the tertiary level in most nations, and while strides have been made, there continue to be disparities across ethnic and gender lines in many places as well.

ICT as a Mechanism for Meeting the Challenges Tertiary Institutions Face

The potential connection between ICT (Information and Communication Technology), education, and national economic development goals has been enthusiastically promoted by international agencies and national governments alike. Crafting enabling legislation for more technology-based education is now one of the predominant global challenges across industrialized nations (Selwyn et al. 2001). International agencies such as the United Nations Development Programme (UNDP) promote ICT as an enabler to address socioeconomic variations in educational access, and the United Nations Educational, Scientific and Cultural Organization (UNESCO) advocates ICT for facilitating the modernization of education, improving the quality of learning, and enhancing the quality of life in general.

Among the more remarkable stories for promoting ICT for economic development is that of Rwanda, a nation with a per capita income of about US\$560 per year (US Department of State 2011). The Rwandan government's 2000 report, *Rwanda Vision 2020*, proposed to make Rwanda into a technology and communications hub and to use the Internet to transform the country from an agricultural to a knowledge-based society by the year 2020. Since then, Rwanda has constructed approximately 2,300 km of optical fiber cable network across the country. The cost of the fiber optic cable network for this low-income nation was approximately US\$95 million (Fiber Optic Mania 2011), an investment that demonstrates a firm belief in the ability of the Internet to promote national development.

Internet technology, in particular, has been advocated for its potential to broaden the reach of education beyond the brick-and-mortar confines of schools. In fact, the governments of many countries have supported distance education as a means of promoting greater educational access (Clothey 2008), and distance learning is becoming more commonplace