

Preface

Rapid advances in technology have revolutionized the way in which children learn, play, communicate, and socialize. During the past years, the increased interest in applying digital technologies aiming to improve learning and teaching has led to significant growth in research and practice of ICT in education. Several national policies, cutting edge research, and practices worldwide are aiming at leveraging digital technologies to promote the infusion of ICT into education and meeting the twenty-first century life-long learning societal needs. To this end, this book aims to capture the current advances and emerging trends of digital technologies for learning and education through a number of invited chapters in key research areas.

The book is structured into four parts.

Part I: ICT in Basic Education

The first part of the book consists of seven chapters. The focus of this part is on the integration of ICT in schools. Countries throughout the world have established different national strategies for integrating ICT in their schools. Rosa Maria Bottino examines the situation in Italy, focusing in particular on the national plan for digital schools and on some of the projects that have been launched under this umbrella. The chapter reports some of the initial outcomes of the plan, which is presently underway, and looks at various strengths and weaknesses taking into account a review of this plan made recently by the Organisation for Economic Co-operation and Development (OECD).

Dermod Madden introduces the inclusive education in rural Alberta, Canada to show how they have utilized ICT to support twenty-first century learning.

Jon Price, Daniel Light, and Elizabeth Pierson highlight the research on six assessment strategies that should be part of a twenty-first century learning

environment and encourage ministries to consider how these strategies may play a role in their own reform efforts. These strategies include rubrics, performance-based assessments, portfolios, student self-assessment, peer-assessment, and student response systems.

Daniel Light and Elizabeth Pierson focus on the experience of two Russian schools that are using laptops in everyday instruction to explore how educators are enriching and transforming Russian educational practices. After examining the approaches of using laptops in the two Russian schools, the authors propose some common elements supporting their success.

Di Wu focuses on the status, problems, targets, key measures, and experiences of ICT in education in China, and introduces a series of measures such as “three connections and two platforms,” “full coverage of digital education resources in teaching sites,” and “teacher training,” adhering to the core idea of deep integration between ICT and education.

Chee-Kit Looi and Wenting Xie elaborate and discuss two succinct examples of innovations adopting the design-based research approach that has shown promises of impact on classroom practices, on student learning, and of being able to be sustained and scaled to broader contexts.

Vassilios Makrakis discusses ICTs potential as a transformative tool in teaching and learning with focus placed on sustainability education. He argues that ICTs offer opportunities for educators, but there is a need for professional development as perspective transformation, a process whereby prospective teachers critically examine their beliefs, assumptions, values, and personal theories as they learn technologies and acquire new knowledge and experience.

Part II: ICT in Technical and Vocational Education

The second part of the book consists of three chapters, focusing on ICT in technical and vocational education.

Alke Martens, Nils Malzahn, H. Ulrich Hoppe propose pattern-based approaches to introduce new technologies in vocational training by empowering teachers to better manage and share web resources in their teaching. Issues of organizational culture and change management turn out to be decisive for the success of such approaches.

Anup Kumar Ray analyzes available data to identify causes of poor access, equity, and quality in higher technical education system in India, and examines the effects of the policy measures taken to address these issues.

Panagiotis Zervas, Konstantinos Chatzistavrianos, Demetrios G. Sampson focus on modeling teachers' ICT competence profile in Europe by considering existing teachers' ICT competence frameworks and selecting the most appropriate one. They also focus on describing, in a machine readable way, the proposed teachers' ICT competence profile by exploiting existing specifications for competences description.

Part III: ICT in Distance Education

The third part of the book consists of two chapters dealing with ICT in distance education.

Rob Koper presents a case study of a business model change of the Open University of the Netherlands in the period 2008–2013. The implementation of the business model is discussed in terms of adaptations in course development (including the use of open educational resources), course delivery, ICT infrastructure, and a revised model for the implementation of innovations.

Carlos Villanueva and Marcia Ortega address three examples of success cases in distance education within (a) an important financial group with presence in Latin America and Spain; (b) a non-governmental organization based in Europe; and (c) a government department in an African country, through programs jointly designed with a prestigious Mexican higher education institution.

Part IV: ICT in Higher Education

The fourth part of the book consists of three chapters focusing on ICT in higher education.

Okhwa Lee and Yeowook Im present the current trends of ICT in higher education including the new pedagogy for digital teaching and learning, utilization of smart technology for higher education, globalization of e-learning in higher education, and open educational resources.

Toshio Okamoto, Fumihiko Anma, and Naomi Nagata discuss the framework for e-Learning 2.5 and its primary functions through the organizational knowledge circulated management on e-Learning.

Marmar Mukhopadhyay and Madhu Parhar introduce several major initiatives in integrating ICT in management and administration of higher education led by the University Grants Commission in India.

In conclusion, we hope this compilation would benefit learners, educators, scholars, and trainers by providing them an insight of the emerging trends of ICT in education.

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