

# Preface

Smart city is a complex system including smart economy, smart transportation, smart environment, smart learning, smart household life, and smart governance. Creating a smart learning environment in smart city is one of the key elements for the innovative and sustainable development.

Lots of research have been done all over the world to clarify the definitions, dimensions, performances, and initiatives of smart cities. Recently, there is a shift of the focus in these research from technologies oriented on infrastructure to citizen-oriented applications. Education plays an important role in sustainable development and livability of a city, as it promotes creativity and innovation. However, only few studies can be found in smart cities from the educational perspectives. This book aims to discuss smart learning in the background of discussions on smart cities.

Smart learning is an emerging area of interest as a component of other related areas, such as smart technology, smart teaching, smart education, smart e-learning, smart classrooms, smart universities, and smart society. Smart learning comprises not only formal or traditional learning (learning that takes place within a school curriculum), but also informal learning which covers all other forms of learning through informal channels (social media, Internet, MOOCs, game-based learning, and so on);

There are three parts of the book. Part I contains three chapters that introduce the concepts of smart city and smart learning, with the aim to explain the relationship between these two concepts.

Chapter 1, after discussing the definitions and applications of smart cities, is proposing a dual-core framework of smart cities. It is stressing the relationship between creativity of cities and the citizen's livable experience closely related to learning environments in a city. Chapter 1 concludes with the discussion on the relationship between development of a smarter city and smart learning environment.

Chapter 2 aims to analyze smart learning environments in a broader way by integrating both formal and informal learning, as well as physical and virtual spaces in city learning scenarios. After proposing the definition of smart learning

environments, author analyzes the six aspects of smart learning environment which are as follows: learning resources, learning tools, learning communities, teaching communities, ways of learning, and ways of teaching. The authors also propose a system model and TRACE<sup>3</sup> functional model of smart learning environment. Finally, they analyze the five typical smart learning environments in a smarter city: “self-learning”, “inquiry learning”, “learning in doing”, “learning in working”, and “classroom learning”.

In Chap. 3, a framework for smart learning is proposed to show the four components of smart learning: learner, supportive technology, core elements of learning scenarios, and logical laws for teaching and learning. Author also describes the four principles and four kinds of supportive technologies. At the end of Chap. 3, the relationship between smart learning and smart city is discussed.

Part II contains four chapters introducing smart learning in various domains.

Chapter 4 investigates the current status of digital campus in China, mainly from the perspective of network construction, digital learning terminals, learning support systems, and information safety. Results reveal that the network access has improved, the learning terminals are enriched, the construction of teaching support service system is unbalanced in different schools, and information safety has been enhanced. Following the analysis of the status, the future trends of digital campus are discussed, and 10 best practices of digital campus in China are introduced.

Chapter 5 is presenting the status of ICT in classrooms in China. Firstly, the trends of ICT in classroom are analyzed. Secondly, the status of multiple types of classroom (multimedia, computer, interactive whiteboard, and tablet computer classrooms) is analyzed. Thirdly, ways to build smart classroom are discussed from classroom equipment, spatial arrangement, teaching application, and cases.

Chapter 6 introduces the development and current status of corporate universities in China, including their background, features, functions, teachers, and the structure of courses. The connection of learning elements in the corporate university and smart learning is also identified with case analysis in this chapter. The online platform of corporate university is introduced by description of its framework, functional module, application, and effective implementation. In the end, the future directions of corporate universities are discussed.

Chapter 7 discusses the developmental stage and main features of smart learning industry in China. The analysis shows that the industry of smart learning develops rapidly in China as a result of increasing market demand, the strengthened support from governmental policies, and the encouragement from capital investors. It cultivates three typical business models: the digitization of traditional regular education, development of learner-centered learning platforms, and creating online schools for professional training in subdivided fields.

Part III of the book contains two chapters discussing the trends of smart learning in smart cities from different perspectives.

Chapter 8 outlines the developmental trends of smart learning in China and offers suggestions for the government how to promote smart learning industry in the long term. The impact of information revolution on smart learning is analyzed from the perspective of learning society, learning behavior, mobile learning, smart city,

and learning innovation. The future trends of smart learning are discussed in the context of integration with “Internet +”, reconstructing the structural of learning, reconstructing learning environments, reforming online education, and upgrading smart learning.

Chapter 9 reviews some opinions on the role of multicultural perspectives on smart cities proving that just providing technological infrastructure is not enough for success of smart school. In planning of a smart school and organizing smart learning environment, it is necessary to consider local traditions, values, and other cultural factors, as they will determine the motivation of both students and teachers. An important trend in development of smart schools and smart cities will be focus on training of teachers providing knowledge not only on technology, but also on impact of cultural context on learning. This brief analysis may allow the reader to better understand the specificity of Chinese perspective on these concepts, and by connecting the local with the global, we all can more efficiently contribute to the realization of the United Nations Sustainable Development Goals.

Smart learning as element of education plays an important role for the sustainable development of smart cities. This book intends to let reader to understand the relationship of smart learning and smart cities, to know the status of smart learning in China in specific domains of digital campus, digital classrooms, cooperate universities, and smart learning industries. We hope that policy makers, researchers, teachers, practitioners, and graduate students from China will better understand global context of this relationship. We also hope that as this book is also giving Chinese perspective on smart learning and smart cities, it will find interest among the global audiences.

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