EMERGING TECHNOLOGIES IN DISTANCE EDUCATION

> **Edited by** *George Veletsianos*

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Distance education is the fastest-growing mode of formal and informal teaching, training and learning. Its many variants include e-learning, mobile learning, and immersive learning environments. The series presents recent research results and offers informative and accessible overviews, analyses, and explorations of current issues and the technologies and services used in distance education. Each volume focuses on critical questions and emerging trends, while also taking note of the evolutionary history and roots of this specialized mode of education and training. The series is aimed at a wide group of readers including distance education teachers, trainers, administrators, researchers, and students.

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GEORGE VELETSIANOS

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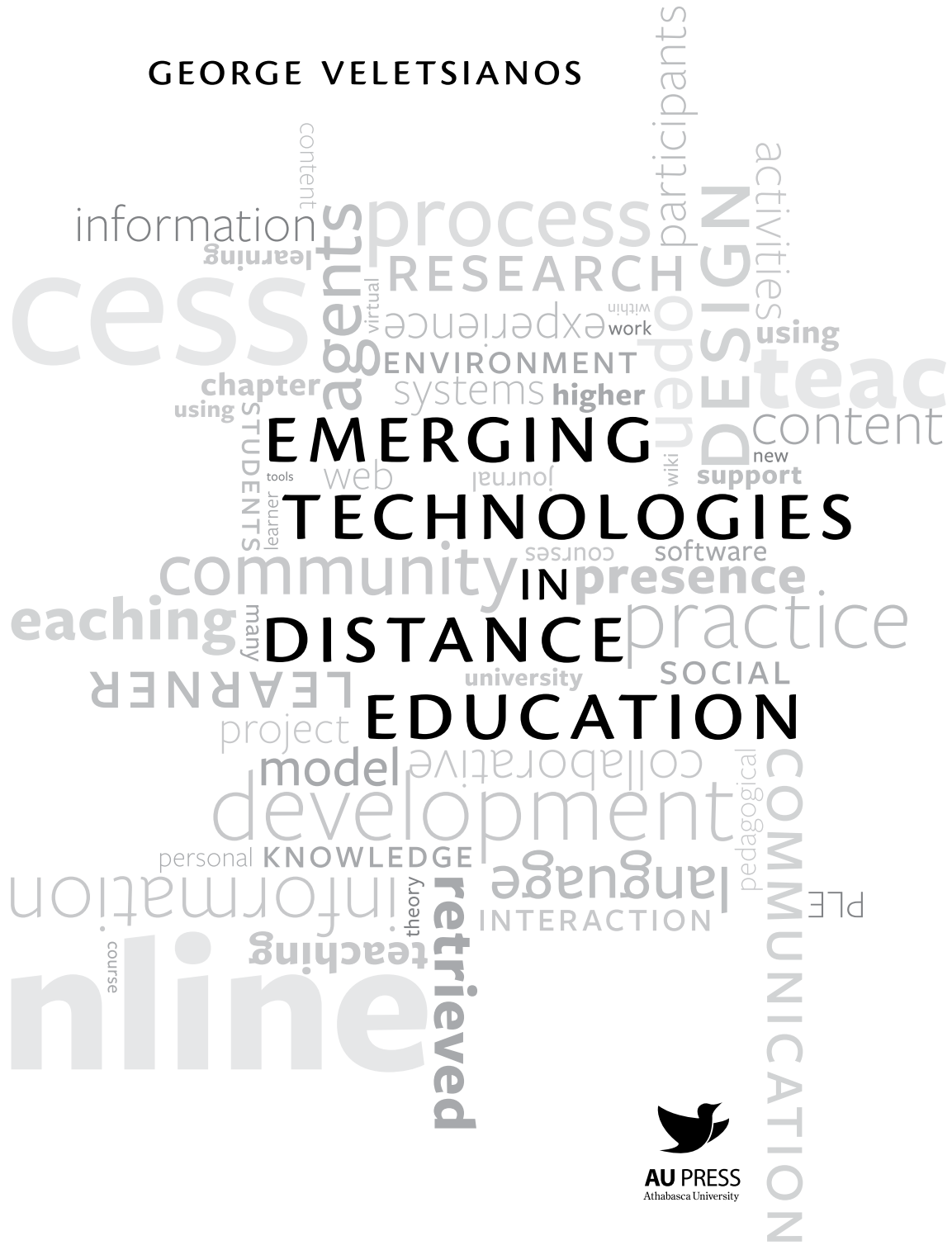

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INTRODUCTION

> *George Veletsianos*

Emerging technologies have been heralded as providing the opportunities and affordances to transform education, learning, and teaching. Nevertheless, scholarship on the opportunities of emerging technologies in the context of online *distance* education has been minimal. Most often, researchers, designers, and educators present a description of how such technologies can be used in face-to-face and hybrid courses, but not in distance education courses. Additionally, distance education researchers and practitioners reside in varied academic domains, rendering the sharing and dissemination of their work a formidable task. As a result, the picture of how such technologies are used in distance education is fuzzy. In this book, therefore, we sought to amalgamate work in the use of emerging technologies to conceptualize, design, enhance, and foster distance education. This edited volume intends to harness international experiences, dispersed knowledge, and multidisciplinary perspectives for use by both members of research communities and innovative distance education practitioners. Notably, contributors from eight countries (Australia, Canada, Cyprus, Finland, Greece, Israel, the United Kingdom, and the United States) discuss a broad range of issues. Whether training teachers and designers in Canada, promoting the use of wikis within a single institution in Israel, or engaging teachers and students in worldwide climate change dialogue, the thread connecting these chapters is the use of emerging technologies in distance education.

The book begins by discussing the foundations and meaning of *emerging technologies*. George Veletsianos (chapter 1) notes that the term "emerging technologies" is often used haphazardly without a clear understanding of what it really means. The conceptualization of the term proposed in chapter 1 situates the chapters that follow and establishes a common ground upon which future conversations can be extended. Terry Anderson (chapter 2) solidifies the foundations of this book by reviewing established and contemporary learning and instructional theories intended to guide the utilization of emerging technologies in distance education. Importantly, the work presented in later chapters of this volume can be traced back to the theoretical foundations discussed by Anderson. In turn, Wellburn and Eib (chapter 3) investigate the opportunities and complexities afforded by emerging technologies and ask readers to explore the meaning of our roles as experts, amateurs, authors, learners, educators, and audiences. In the same way that other authors in this volume highlight (a) the power of the method, and (b) the power of the technology to transform and widen the methods we use rather than the medium per se (e.g., chapters 2, 5, 6, 7, 14), Wellburn and Eib ask us to envision how the affordances presented to us by emerging technologies can empower us to change the ways we teach and learn. While "connected and social" distance education is a facet of emerging technologies that is discussed in chapter 3 and investigated throughout the book, Lee and McLoughlin (chapter 4) examine the potential of the participatory nature of the Web to rectify traditional distance education problems and foster improved learning experiences. Central to the arguments and examples presented in this chapter is the idea that emerging technologies can enhance authentic and social learning experiences by enhancing presence, community, interaction, and participation.

The second part of the book focuses on emerging pedagogical approaches that are facilitated by emerging technologies. In chapter 5, Doering, Miller, and Scharber illustrate and exemplify how the ideas presented in the introductory chapter of this volume are evident in practice by focusing on the idea that the way we use technology matters more than the tool we use. Specifically, they introduce Adventure

Learning as a framework that provides students and teachers with the opportunity to engage in real-world experiences while collaborating and interacting with explorers, students, and content experts at various locations throughout the world. Collaboration between learners and learner-educators and the use of a multiplicity of emerging technologies to design engaging learning experiences are also evident in the chapter authored by Couros (chapter 6). In this chapter, Couros reflects upon and discusses the theoretical, pedagogical, technological, and philosophical foundations of a graduate-level educational technology course delivered at a distance. This course was informed by an open teaching model and made extensive use of the author's personal learning network to facilitate learner integration into a persistent online learning community. Perry and Edwards (chapter 7) extend our thinking on learning communities by arguing that online cultures of community are founded on artistic elements. Artistic Pedagogical Technologies, situated within philosophical, theoretical, and pedagogical considerations, are thus presented as teaching strategies intended to enhance presence, community, and interaction. The section on emerging pedagogical approaches concludes with a chapter from Laouris and colleagues (chapter 8), who describe the science of dialogic design and its use within emerging technologies to develop a new methodology for distance-based disciplined and democratic dialogue. Examples in which the dialogic design process was embedded within emerging technologies are also presented.

Next, five chapters investigate the complex social, organizational, and contextual landscape of emerging technology implementations in distance education. First, Martindale and Dowdy (chapter 9) introduce Personal Learning Environments (PLEs) as broad and holistic learning landscapes, as well as specific collections of tools that facilitate learning. These authors explore the implementation, use, adoption, and challenges faced by PLEs (both in terms of personal and institutional adoptions) while positioning PLEs as powerful environments in the quest for informal and self-directed learning. Whitworth and Benson (chapter 10) examine directive and responsive learning management systems and investigate how one specific responsive emerging

technology, Moodle, came to be utilized in two institutions with divergent aims, communities, and practices. Importantly, in line with ideas presented in chapters 1 and 11, Whitworth and Benson demonstrate both how the actual technology *influenced* distance education practice, and how the use, implementation, and adoption of the technology *were influenced by* educational practice. Further granulations of this idea are posited by Hagit Meishar-Tal, Yoav Yair, and Edna Tal-Elhasid (chapter 11), who discuss the experience of implementing wikis at the Open University of Israel. The chapter examines technological, pedagogical, and administrative perspectives related to institutional implementation, and extends this discussion into matters relating to wiki diffusion and sustainability. Importantly, the authors highlight one important dimension of emerging technologies: the possibility of the institution adjusting to the emerging technology such that the technology becomes part of the institution's culture of learning and teaching.

One emerging technology that can yield insights into technology adoption, diffusion, and use within an institution is web analytics, which is the focus of the next chapter (chapter 12). Rogers, McEwen, and Pond introduce web analytics as an emerging tool used in the design and evaluation of distance education. Specifically, the authors explain how web analytics can be utilized to gain knowledge about, and insight into, student behaviors, outcomes, and engagement. By learning if, how, when, and to what extent learners engage with web-based courses, instructors and distance education providers can make efficient and effective curricular and pedagogical decisions with regards to distance and web-based courses.

Caladine and colleagues (chapter 13) conclude this section of the book by investigating key issues with regards to employing Internet Protocol Video Communications in distance education. While interest in video communication has been expanding in recent years, Caladine et al. note that distance education instructors and managers lack the knowledge and skills to effectively and efficiently harness video communications. Beyond the importance of video, however, chapter 16 introduces a crucial point for the study and use of emerging technologies:

"A repeating dilemma will arise with each new wave of technology: *Should this be used for formal education or is it a personal/social tool better left in the realm of informal communication?"* Anderson (chapter 2), Wellburn and Eib (chapter 3), Martindale and Dowdy (chapter 9) , and Kop (chapter 14) implicitly raise the same question. While a strong desire (and perhaps pressure) exists to employ new and emerging technologies in formal distance education (see chapter 1), it is important that we critically evaluate (and experiment with) a set of technologies with respect to the opportunities that they afford.

The final section of this book deals with interaction and communication with emerging technologies, a theme that permeates educational technology discussions in general, and this book in particular. Kop (chapter 14) presents a case study of how emerging technologies can be used for true dialogue in the context of an informal and comfortable online place that enables a sense of "nearness" and "presence." In line with Anderson's theoretical foundations (chapter 2), Kop highlights the value of communication and interaction. In addition, Kop introduces ideas expanded upon by other chapters within this volume, including institutional control (chapter 10), empowered instructors (chapter 6), and the distinctions between "amateur" students and "expert" instructors (chapter 3). Wang, Calandra, and Yi (chapter 15) explore cross-cultural technology use in their investigation of the affordances provided by Multi-User Virtual Environments for learning English as a foreign language. One of the most important lessons highlighted by Wang and colleagues (and also discussed in chapters 2, 5, 6, and 16) relates to the fact that interaction is of fundamental importance to the design of successful learning experiences. In particular, the authors note that when engaging learners in language learning within MUVEs, designers and instructors need to consider the possible interactions between learners and (a) their own avatars, (b) the avatars of others, and (c) the virtual environment. Heller and Procter (chapter 16) expand the discussion of interaction within virtual worlds by focusing on virtual characters. Specifically, they review the field of animated pedagogical agents and concentrate on actor agents that are able to participate in pedagogical simulations and activities. Reformulating

the discussion of avatars in virtual worlds in the context of pedagogical agents, Heller and Procter highlight interaction and communication between learners and avatars, as well as the narrative in which the learner experience is situated.

I hope that you find this book enjoyable and worthwhile for your practice and research. Personally, I view the work presented here as the beginnings of a larger conversation about education, technology, and universities, rather than the final words of wisdom from academics. I would therefore like to see this work extended through conversations in conferences, journals, and web postings, further refining the ideas presented and further aiding in enhancing research *and* practice. It is only through conversation and refinement of ideas that we can improve education. This book, by being offered freely and openly to anyone interested, aims to do just that.