Preface

INTRODUCTION

Higher education is surrounded by expectations and demands from various stakeholders. When it comes to higher education and information and communication technologies (ICT), at least two types of formulation and realization arenas can be identified. A first arena, in a nonacademic context, mirrors the development of a tremendous growth in the belief in the power of ICT demonstrating itself through e-learning. This is present in relation to the so-called market as well as in the context of governmental instances such as the European Union (EU). They seem to share an idea of ICT in higher education, embodied in the concept of e-learning as the savior that will pave the way for a more democratic and tolerant world inhabited by humans with high digital competence ready to lead the world into the future. Within such a development, a possible scenario could be that ethical issues of e-learning become a question of instrumentalism and design in the sense that several general principles are constructed with the aim of directing how students should act and learn together in, for example, Virtual Learning Environments (VLE) in normative and unreflected ways.

A second arena, not necessarily opposite to the first, is placed in an academic context and holds the practices of both education and research. These practices can be located inside the walls of the universities as well as on the Internet. It will likely be increasingly important to include ethical aspects when educating students in technology-rich environments, in online environments, and, not the least, in the research of such environments and related educational activities. The case will most likely be the same regardless of whether the research carried out is conducted in terms of, for example, developmental, design-based, or interpretational research. To point to precisely what this will mean seems difficult, but nonetheless it seems crucial that both practices consider that being a human is always also a being-for-the-other (Lévinas, 1969, 1981, 1986; Olofsson & Lindberg, 2008). Education as well as research can never be reduced to merely providing the “right” teaching methods; depicting the “right” guidelines; or suggesting the “right” technologies. Rather it is a question of identifying and being aware of different, inherently ethical needs in democracy and the privilege to participate in higher educational activities on equal terms for all included. In relation to designing educational technology, Mor and Winters (2007) state that “Every piece of technology designed for education assumes, and therefore supports, a particular organizational structure and a specific prioritization of knowledge. Yet these assumptions are often left unmentioned” (p. 67). It is for reasons such as the one mentioned by Mor and Winters that we will argue that issues of informed and reflected design focusing on the use of educational technology in higher education needs to be constantly addressed. Researchers, teachers, and other stakeholders in higher education must be prepared to meet institutional changes and demands from present and future students. Teachers need to
be able to make informed choices among the variety of educational technologies available. Choices need to be explained, and not only in relation to curricula and instruction. To provide programs and courses in higher education in the most developed, productive, and at the same time ethical way possible, teachers have to make informed choices scaffolding the possibilities for students to attain both formal learning outcomes as well as students’ own informal, or personalized, goals. Learning and teaching in higher education must continuously be enhanced in a sound and sustainable way (Looi, Toh, & Milrad, 2010). Teachers’ theoretical and practical skills when it comes to the design of educational technologies are therefore always in constant need of rethinking and improvement, and research needs to embrace such a perspective. This book shall be read as a contribution to such activities and processes.

Informed Design and Learning: A Question of Moving From Technology Toward Educational Technology?

Thus far, the question of design in relation to learning and teaching within higher education seems to not be thoroughly addressed, especially in relation to educational technologies (Der-Thanq, Hung, & Wang, 2007). In trying to find a possible answer regarding why this seems to be the case, one can start by considering design as a science and why design issues seem to have become increasingly attractive in relation to higher education and educational technologies during the last 10 years. According to Mor and Winters (2007), design approaches in learning and teaching with technology are under the strong influence of Professor Herbert A. Simon (1916–2001). Simon differentiated between natural sciences, or the behavioral science paradigm, and the sciences of the artificial, whereas the former is about the question of what is, and the latter deals with the question of what ought to be. The same underlying rhetoric of the possibilities to create, develop, and change through design can be found in Walls, Widmeyer, and El Sawy (1992) arguing that design is both a noun and a verb, both a product and a process. That is, it embodies a set of both activities and artifacts (compare Hevner, March, Park, & Ram, 2004; March & Smith, 1995) that could be implemented and used in educational activities. Most likely, this ambiguity makes it rather attractive for higher education institutions and teachers wanting to develop and facilitate the learning and teaching practices. Hokanson, Miller, and Hooper (2008) points at an important factor, that is—design activities in relation to education should “focus on creating rich and innovative learning experiences, as opposed to simply developing instructional products through staid processes. Advancing design innovation through use of a new set of design lenses and perspectives” (p.37). In other words, to create innovative and enhanced learning experiences for the students, the design process must involve informed choices. Der-Thanq, Hung, and Wang (2007) uses a similar argumentation saying that often when it comes to educational design, the theoretical foundation for the design process and its implementation is not congruent; there is a lack in the epistemological logos between the learning theories behind a certain educational design. Mor and Winters (2007) follow this line of thought in addressing the fact that design studies should yield theoretical contributions when bringing up the gap between theory and practice. Theory is also said to be crucial when providing new constructs for describing and thinking about the consistently value-driven educational practices and related questions. In their words, it all seems to be a question of “to what extent are we driven by a pure quest for knowledge and to what extent are we committed to influencing educational practice?” (p. 64).

In the previous paragraph, we tried to sketch a possible relation between design and education. Next, we will attempt to connect technology to design and education. Mitcham (1994) claims that one of the most significant aspects of being human is the use of technology. Technology can be understood
in different ways, but in one sense it is enough to consider it merely as a tool, an artefact, to realize its importance. At the same time, it might be enough to merely consider the development of technology as a tool in education to realize how the transformed use of technology has affected education. According to Laurillard (2008a), technology, per se, does little for education and can never be the whole solution for providing high-quality higher education. In addition, technology in education is not an uncomplicated affair. Laurillard makes the point that “The recent history of technology in education always tells us that however good it is, it achieves little without the complementary human and organizational changes needed, and these are always more difficult. Using technology to improve education is not rocket science. It’s much, much harder than that” (p. 320). When providing a critique of too technology-friendly e-learning initiatives, Dillenbourg (2008) agrees with Laurillard, saying that technology is not in itself innovative, but innovation germs may be hidden in specific details. Dillenbourg continues in his critique by claiming that during the last years, too much focus has been on online learning, e-learning, and other such conceptualizations. Dillenbourg’s argument is that “the place of technology in educational activities is not a dichotomy (with vs. without). Most spaces include some technology” (p.132). In this book, we try to follow Dillenbourg not only by including a number of chapters that provide examples of educational technologies integrated in physical higher education contexts, as well as higher education practices carried out in an online context, but also, through different chapters, by highlighting human, organizational, educational, and informed design-related factors involved when searching for important knowledge to enhance learning and teaching in higher education. Laurillard (2008b) gives us further support for such an approach in talking about the relationship between learning and technology. Her opinion is that “Learning complex concepts and mastering difficult procedures and processes, will always require effortful thinking. Technology will probably not change what it takes to learn, therefore, but it may change how the process of learning is facilitated” (p. 527).

Therefore, concurring with the researchers referred to above, there is a clear connection between education and technology. That is—today, educational technology plays an important role in modern higher education and will do so also in the future (see also Lindberg & Olofsson, 2010). But there is also criticism toward some of the research being conducted on educational technologies and on related educational practices. For example, Bebell, O’Dwyer, Russell, & Hoffmann (2010) claim that often in such research there seems to be a lack of theory guiding the studies and that these studies repeatedly fail to provide sufficient empirical evidence in relation to its outcomes. They use such strong words as “Even today, little empirical research exists to support many of the most cited claims on the effects of educational technology” (p. 31). Dillenbourg (2008) claims that educational technology research needs to more often consider multiple factors such as context, software, students’ motivation, organizational constraints, and so on. Mor and Winters (2007) argues for a better and more effective communication and exchange between research communities primarily interested in the technology aspects of educational technology and those primarily interested in the educational aspects of educational technologies. In addition, they mean that the design process requires input from many diverse areas of expertise. It is our ambition in this multidisciplinary book to take on such challenges and to present research with solid empirical results. Included in the book is therefore research that is concerned with the complex practice of educational technologies in higher education and related questions of informed design. The outspoken intention is that this book can function as a bridge between the two research communities described by Mor and Winters (2007), providing new insights and knowledge that contribute to the process of closing the gap.
Learning and Teaching with Educational Technology in Higher Education

In seems rather uncomplicated to claim that two important actors or parts in higher education are teachers and students. But do these two parts uphold an unproblematic relationship? According to one strand of the research literature, it is sometimes said that there is a gap or digital divide between them when it comes to their use of technology. One often cited idea is of the students as so-called digital natives (Prensky, 2001) born into a world with ICT and related digital technologies that rapidly become an apparent part of their everyday life. Today, students belong to a generation that have been immersed in digital technology all their lives. Implied is that those digital natives, when entering higher education in the role of students, expect to carry out their studies with tools they are used to—that is, various forms of digital technology. This expectancy, research tells us, may cause difficulty when meeting university organizations and teachers not familiar with the implementation and use of ICT in their educational planning and teaching practices. In another strand of research, the concept coined by Prensky seems to be receiving critique. For example, one critique is that not all students of today can be understood as digital natives (e.g., age factors, socioeconomic differences, cultural differences, and so on may make the digital natives heterogeneous as a group), and another critique is that many universities and their teachers are today fairly well orientated in the use of ICT and other digital technologies. Bennett, Maton, and Kervin (2008), in relation to the academic discussion of the concept and inherent meaning of digital natives, add “that rather than being empirically and theoretically informed, the debate can be likened to an academic form of a ‘moral panic’” (p. 775). A possible question to pose seems to be if it matters whether or not digital natives exist, or if that concept is overestimated when it comes to learning and teaching with educational technologies in higher education. Maybe the important issue to recognize is that higher education institutions today are crowded not only with teachers and students but also with many educational technologies that in various ways provide possibilities, and sometimes constraints, for the educational practices both on campus and online. The important thing might be to design educational technologies in the most informed way possible that can contribute to enhance learning and teaching as well as develop the university on an organizational level.

Another aspect important in relation to the discussion in the previous paragraph is that education and educational design are ongoing processes (Wang, 2008). However, Schneckenberg (2009) warns us that the current educational design of most curricula applies a traditional model of knowledge transmission of specific subject matter and leads in the best way to the acquisition of a qualification. Therefore, an urgent and constant need seems to exist for teachers to select learning goals in an informed, systematic, and well-analyzed way, to address what kind of content is appropriate for framing these goals, and to choose educational technology tools in relation to the three questions of what, when, and why. Further, it seems important to create active and collaborative orientated-learning processes among the students that also scaffold the students’ own learning. Last but not least, the question remains of how the assessment practices shall be constructed in order to evaluate the learning goals (Lindberg, Olofsson, & Stödberg, 2010; Olofsson, Lindberg, & Stödberg, 2011).

In line with the points made by Dillenbourg (2008), we claim that educational technologies are becoming, in a way, an invisible part of educational practices framed in a higher education context. They are becoming integrated in students’ learning activities, using Dillenbourg’s words, which are being orchestrated by the teachers (see also Sorensen & Ó Murchú, 2006). Therefore, it seems to be more important than ever to make explicit the theoretical foundations that our design of educational technologies rests on to provide for transparency between the design approaches used and the choices made, and to
make explicit how they support the teachers’ work and the students’ learning. For that reason, the call for chapters for this book invited authors from different academic backgrounds and disciplines, with different focuses in their research, ready to go beyond what so far has been reported in the research literature in this field. Together in this book, we create a body of research-based knowledge paving the way for informed design of educational technology in higher education for the cause of enhanced learning and teaching. Next, we will introduce the section themes presented in the book along with some words about each of the included chapters.

Section 1: Aspects of the Research Field

This section introduces the different themes of the book and the various aspects present within each theme. The four chapters included offer a solid foundation for understanding this particular field of research. It provides insight into important issues brought up by the different authors, and it will help to frame the reading of the other chapters in the book. Specifically, this section includes chapters dealing with learning and teaching, educational planning and assessment, and educational technology and the relation to instructional design. The first chapter, “The Influence Upon Design of Differing Conceptions of Teaching and Learning with Technology,” written by Adrian Kirkwood and Linda Price from The Open University, UK, includes some of the theoretical foundations of teaching and learning in higher education. It is stressed by the authors that informed design in the use of technology is underpinned by conceptions of teaching and learning with technology. If academic teachers consider their own conceptions of teaching and learning with technology, it could imply a move toward learner-centered pedagogies and user-led conceptions of technology. In chapter 2, “The Outcomes-Based Approach: Concepts and Practice in Curriculum and Educational Technology Design,” Maureen Tam from The Hong Kong Institute of Education, China, concentrates on an emerging trend of an outcomes-based approach to curricula improvement in higher education, which is captured in this chapter. Provided is a critical review of this approach as well as practical considerations and examples for curricula and educational technology design. It is argued that learning outcomes can make important contributions to better curricula and student learning. Chapter 3, “Instructional Design for Technology-Based Systems” written by Gary R. Morrison, of the Old Dominion University, USA, and Gary J. Anglin, of the University of Kentucky, USA, bring forth the risk for instructional designers to be seduced by the possibilities of the technologies of today. Instructions that might seem to be appealing to the learner could instead become inefficient. It is demonstrated in the chapter that effective instruction results from designing instructional strategies based on research rather than from specific educational technologies. Finally in Chapter 4, “The Next Generation: Design and the Infrastructure for Learning in a Mobile and Networked World,” Agnes Kukulska-Hulme and Chris Jones, of The Open University, UK, bring together some of the fast and growing bodies of research on learner practices and networked learning. They argue for an integrated pedagogical design approach that includes learner practices, spaces for learning, and technologies. The authors stress that a major challenge for the future will be to design for learning in contexts in which educators have increasingly limited control.

Section 2: Integrating Arenas Through Designed Learning and Teaching

The second section in this book includes five chapters that in various ways show how educational technologies can be used to integrate different arenas related to higher education. They demonstrate and exemplify
the ways learning and teaching processes can be enhanced through theoretically informed, systematic, and research-based design of the educational activities and can show how different participants or group of participants in higher education can share common spaces for educational purposes. In these chapters, the Internet plays an important role in the education delivery as can be seen in chapter 5, “Using Online Data for Student Investigations in Biology and Ecology,” written by Nancy M. Trautmann, Cornell Lab of Ornithology, USA, and Colleen M. McLinn, Cornell Lab of Ornithology, USA. They take on the challenge to enhance undergraduate students’ research experiences in large higher education classes. It is shown that the use of online databases, including ecological data derived through citizen science, can help to overcome that challenge. Informed design of educational technology in combination with the use of well-analyzed learning theory will provide possibilities for the students to obtain access to research experiences. It is argued that this method of carrying out education instills in students the skills needed to become informed citizens in an ever-changing and networked world. In chapter 6, “Towards an Activity-Driven Design Method for Online Learning Resources,” written by Trond Eiliv Hauge, and Jan Arild Dolonen, University of Oslo, Norway, the authors address how Cultural-Historical Activity Theory (CHAT), which has a strong position in research on educational technologies, can be used as the foundation for a developmental design model in higher education. Through empirical examples collected from school leaders in education in Norway, an activity-driven design method for creating online learning resources is revealed. It is argued that understanding the interplay between cultural artifacts leads to contradictions in design activities and creates opportunities for the transformation of the design as a whole. Chapter 7, “Informed Design of Educational Activities in Online Learning Communities,” written by Urban Carlén, University of Skövde, Sweden, and Berner Lindström, University of Gothenburg, Sweden, consider how the Internet has provided different arenas for higher education students and professionals during the last 10 years. Through the use of so-called professional Online Learning Communities, the authors demonstrate how medical students embrace and learn from discussions with doctors in the medical area of general medicine. An informed design for such educational activities through technologies can contribute both to foster students in becoming doctors and to create and sustain relationships important for their future careers as doctors. In the following chapter 8, “Boundless Writing: Applying a Transactional Approach to Design of a Thesis Course in Higher Education,” Jimmy Jaldemark of Mid Sweden University, Sweden, takes on the issue of supervising students in thesis writing. Today, universities all over the world offer different online courses in which the students are supposed to write their own independent thesis. In this chapter, a design of a thesis course in higher education online informed by a transactional perspective is presented. The author argues that such a theoretical approach will support the students in conducting dialogues around problems related to research tasks as well as enhance the practice of supervision. In the final chapter of this section, “Authentic Tasks Online: Two Experiences,” written by Tel Amiel, Universidade Estadual de Campinas, and Jan Herrington, Murdoch University, Australia, the authors give two accounts of authentic learning tasks in online learning environments. One is an experiential e-learning model focused on preservice teachers and multicultural education; the other is focused on a scenario-based model in relation to mathematics and preservice teachers. Throughout the chapter, the authors provide various possibilities for instructors with regard to the design and creation of authentic learning tasks. They also argue that there is a need for a critical analysis of existing educational technologies to promote a learning environment that engages students in meaningful learning activities.
Section 3: Emerging Educational Technologies

During the last 10 years or so, the number of available educational technologies has increased. The technologies have become more and more advanced, and the possibilities for innovative educational activities through, for example, the Internet is today larger than ever before. In this section, some of these emerging educational technologies and practices are presented. It is stressed throughout the chapters that the educational technologies, per se, will hardly enhance learning and teaching in higher education and must be supported by informed design and use of the technologies. In the first chapter in this section, chapter 10, “Designing for Learning in Computer-Assisted Health Care Simulations” Lars O. Häll and Tor Söderström, Umeå University, Sweden, address the fact that simulations have become increasingly important in medical and health care education. This chapter presents possibilities with regard to how to train complex medical activities in a safe environment. With a base in the work of Luckin (2008, 2010), this chapter proposes an Ecology of Resources framework for analyzing and designing health care simulations. Two empirical cases focusing on how to learn radiology with simulations are presented and discussed. The authors argue for the need for an informed design of simulations and for its use in higher medical and health care education. The next chapter, chapter 11, “The Impact of Instructional Simulation Use on Teaching and Learning: A Case Study,” is written by Michael C. Johnson, Charles R. Graham, and Su-Ling Hsueh, Brigham Young University, USA. They report on a case study conducted on a computer-based instructional simulation—the Virtual Audiometer. The authors stress the importance of analyzing the use of simulations in higher education in relation to learning and teaching. Five areas in which educational technology of this kind can effect and enhance education are presented in this chapter. It is argued that empirical studies can reveal important knowledge of the impact of simulations on learning and teaching as well as knowledge that can inform design of both the simulations as such and its implementation in educational practices. In chapter 12, “3D Virtual Worlds in Higher Education,” Lucia Rapanotti, Shailey Minocha, and Leonor Barroca, all of The Open University, United Kingdom, and Maged N. Kamel Boulos, of University of Plymouth, United Kingdom, and David R. Morse, The Open University, United Kingdom, beginning with the development of more powerful computers, high-speed broadband, and other developments, conclude that 3D virtual worlds have rather rapidly made their way into the educational arena. They provide new possibilities for educators to teach and for students to learn in creative digitalized environments. In this chapter, three case studies report on the use of one type of 3D virtual worlds, Second Life, in higher education. The authors take the challenge of providing a better understanding of how to design and deploy 3D virtual worlds. They argue that one important area for improvement through research is the understanding of pedagogical affordances of 3D virtual worlds. Chapter 13, “Debating Across Borders,” written by Mats Deutschmann, Umeå University, Sweden, reports a case study aimed at the design and initial implementation of a telecollaborative language learning activity between four universities. The activities were carried out in Second Life. The use of three different theoretical frameworks informed the design process, and the empirical data collected was analyzed to discover affordances and constraints related to the learning activities. One important conclusion drawn in the chapter is that traditional forms of examination must be reviewed and revised to better reflect new learning practices such as those emerging in Second Life. Then chapter 14, “Designing Learning Ecosystems for Mobile Social Media” by Jari Multisilta, University of Helsinki, Finland, is concerned with how social media has been given increased attention by higher education institutions. However, there are some knowledge gaps that still to be filled by research. One of the most important gaps is addressed in this chapter—designing learning activities for learning ecosystems based on mobile
social media. Two theoretically informed examples using a framework based on Activity Theory (AT) and Experiential Learning Theory (ELT) are presented. It is argued that this framework can lead to improvements in designing future learning activities and learning ecosystems in higher education based on mobile social media. In chapter 15, “Mobile Learning in Higher Education,” Rui Zeng, University of Texas Health Science Center at Houston, USA, and Eunice Luyegu, Franklin University, USA, provide an account of how mobile learning offers new technical capabilities for higher education. This chapter provides insight into various dimensions of mobile learning. Broad definitions and discussions of informed mobile learning are presented in a review of much of the existing work in the field. The authors argue that mobile learning is still an emerging and immature field and that the pedagogical use of mobile devices is not widespread in higher education. The final chapter of the section, chapter 16, “Designing for Active Learning: Putting Learning into Context with Mobile Devices” Carl Smith, Claire Bradley, and John Cook, London Metropolitan University, together with Simon Pratt-Adams, Anglia Ruskin University, United Kingdom focuses on the design of active and collaborative learning in urban settings through the use of context sensitive technologies in terms of mobile devices. The empirical studies presented show that Design-Based research can be used in order to tailor the use of mobile educational technology in higher educational practices. The authors argue that social media and augmented reality are important to pay attention in urban education projects of the future.

Section 4: Informed Design Models and Educational Technology

Over the years, research and practices related to instructional design and educational technology design have often been demonstrated through the use of various types of models. These models often describe the way a certain educational activity or sequence ought to be carried out. In addition, the questions of what, when, and why certain educational technologies ought to be used are addressed. The models are used for various purposes, on the one hand, to suggest ways to attain better practices, and on the other hand, to function as a tool for understanding practice. In this section, five chapters provide in theoretically informed ways innovative and challenging design models to enhance learning and teaching with educational technology in higher education. Beginning with chapter 17, “Fostering NCL in Higher Education: New Approaches for Integrating Educational Technology Instructional Design into Teachers’ Practices,” Serena Alvino and Guglielmo Trentin, Institute for Educational Technologies—National Research Council, Italy, depart from the increased use of the Internet for educational purposes, arguing that networked collaborative learning (NCL) is an important factor in higher education. The authors demonstrate how to foster a wide diffusion of educational technology and NCL in higher education. In addition, they provide an approach to faculty training in educational technology instructional design that provides the teachers with possibilities for designing active and collaborative learning practices. The authors argue the importance of giving the teachers direct and indirect scaffolding when designing for NCL activities. In chapter 18, “Social Network Informed Design for Learning with Educational Technology” Caroline Haythornthwaite, University of British Columbia, Canada, and Maarten DeLaat, Open Universiteit Nederland, The Netherlands, introduce the social network perspective and ways to use such a perspective to explore and understand learning. In addition, they provide research demonstrating how knowledge of informal learning networks can facilitate informed design for learning, teaching, and professional development with educational technology. Chapter 19, “Designing a Model for Enhanced Teaching and Meaningful E-Learning,” written by Heli Ruokamo, Päivi Hakkarainen, and Miikka Eriksson, University of Lapland, Finland, introduces and discusses a pedagogical model the authors have
developed. They continuously revise it to make it even more useful for designing educational activities that are supported by educational technologies—the model of Enhanced Teaching and Meaningful e-Learning. The model provides possibilities to design, implement, and evaluate the use of educational technology in the context of higher education. A research study related to the model is presented, and suggestions for related course developments are articulated. Then in chapter 20, “An Ecological Approach to Instructional Design: The Learning Synergy of Interaction and Context,” Paul Resta and Debby Kalk, The University of Texas at Austin, USA, describe possibilities for engaging students in authentic learning experiences that can help them to develop a deep understanding of their learning objectives. These experiences are often facilitated and mediated through the use of educational technologies. In this chapter it is argued that to afford such learning experiences, the instructional designer needs to move beyond existing and traditional sequences of design and instead use a nonlinear approach or model. The authors present and suggest the ecological approach to instructional design as one possible and fruitful approach. Finally in chapter 21, “Multi-Faceted Professional Development Models Designed to Enhance Teaching and Learning within Universities,” Donald E. Scott and Shelleyann Scott, University of Calgary, Canada, draw from results generated from two mixed-method case studies on online and blended learning and from two informed models to promote pedagogical-focused professional development and design. Also discussed is the way educational technology can be integrated to facilitate model-related activities.

Section 5: Changing Educational Practices through Informed Choices of Design

To change the educational practices and activities embraced by educational technologies in higher education in a positive and productive way, there is a constant need for well-informed decisions. Deep knowledge is required to support this kind of decision, and there are quite a few ways to generate or build such knowledge. In this fifth and final section of the book, three different approaches for promoting successful changes in educational, technology-rich contexts are presented. The chapters, one by one and together as a triad, communicate a rationale for change through informed design. Examples come from online, blended, and physical environments and practices in higher education beginning with chapter 22, “The Design of Learning Materials within Small-Scale Projects: What is the Value of an Action Research Approach?” It is written by Michael Hammond, University of Warwick, UK, and Jie Hu, University of Chongqing, China. In this chapter, the authors’ focus is on the design of learning materials in small-scale projects, and they present a case on how to support academic reading skills on a university level. The authors demonstrate that using an action-research approach can be a powerful way to facilitate learning, teaching, and designing of related material in higher education. At the same time, they stress that there is always a need to pay close attention to the tension between the different stakeholders involved in an action research process. Then in chapter 23, “Instructional Technical and Pedagogical Design: Teaching Future Teachers Educational Technology,” Anne T. Ottenbreit-Leftwich, Mark O. Millard, and Peter van Leusen, Indiana University, USA, address an important task for universities around the globe—to prepare future teacher education students to use educational technology. An equally important task is for university teachers to select the most appropriate technologies in the learning and teaching activities together with the students. In this chapter, it is discussed how a conceptual guide for technology teacher experiences informed the educational technology design in a teacher education course. In the chapter, the importance of the instructional design is continuously assessed and evaluated is stressed. Finally, in the last chapter of the book, chapter 24, “Priorities in the Classroom: Pedagogies for High Performance...
Learning Spaces,” authors Robert Emery Smith, Helen L. Chen, Menko Johnson, Alyssa J. O’Brien, and Cammy Huang-DeVoss, Stanford University, USA, take up the challenge of what the future will demand from higher education institutions. The importance of current designs, implementations, and various possible scenarios for the future classroom and learning spaces, embraced by advanced educational technologies, is stressed. Informed by the Technology, Pedagogy, and Content Knowledge (TPACK) model, the authors design and demonstrate a three-level categorization of teaching innovation. They argue that it is of great importance that informed teachers’ classroom priorities be kept on the pedagogy, not on the latest educational technologies.

Scholarly Value and Contribution of the Book

It is our hope that this book will contribute to a wider, deeper, and informed understanding of the current state and future potential of informed design of educational technology in higher education. The underlying idea of using educational technology in informed ways is to actually enhance learning and teaching in higher education through encouraging a reflected approach in which ethical issues are always considered. In addition, we believe that informed understanding will pave a productive way of developing the higher educational system to better cater to a future workforce. The content of this volume is useful at the policy-making level as well as at actual university researcher and teacher level; the content provides and demonstrates productive ways of bridging the otherwise often separated groups of professionals concerned with learning and teaching using educational technologies in higher education.

CONCLUSION

This book presents interesting aspects regarding enhancing learning and teaching in higher education through the informed design and use of educational technology. Each section or chapter can be read separately as a stand-alone contribution, but all can be read as a whole as well; each is connected and informs the sections or chapters to come. We are convinced that the book covers many important aspects of informed design of educational technologies in higher education, and these are aspects that are thoroughly presented, discussed, and reflected upon in the chapters. Altogether, such informed elaborations provide a solid platform for both educational practice and related future research. It is important to address the potential for informed design of educational technology. Its use in policies and in learning and teaching activities enhances the insight of the impact that learning, teaching, and related educational technologies, in combination with learning arenas, can have in enriching and cultivating the practices of students and staff. As a reader, you will be provided with a framework of theoretical ideas of possible understanding and implementations of the design of educational technology. You will acquire access to research-based knowledge that can be used to reflect or act upon in relation to your own professional context or practice. In this way, the book will expand the field of research and provide both theoretical support and practical examples to the reader.
REFERENCES


