Preface

INTRODUCTION

E-learning has become an inherent tool for instructional delivery among all kinds of educational institutions and for all levels, from primary to higher, professional or technical education. New tools and technologies are being developed to cater to e-learning triangle of content, technology and services. Docebo (2016) in its 'Elearning market trends and forecast 2017-2021' report observes a shift, growth and evolution in e-learning sector. The e-learning market was worth USD 165 Billion in 2015 and all set to grow by 5% between 2016 and 2023 surpassing USD 240 Billion. Technavio's market research (2016) also reports an increasing need for training programs for enhanced employee productivity and an adoption of advanced technologies for this purpose, this would result in a growth in corporate e-learning market at a CAGR (compound annual growth rate) of around 11% by 2020. Adams Becker et. al. (2017) in NMC Horizon Report: 2017 Higher Education Edition further substantiate these predictions. The NMC Horizon Report (2017) identifies blended learning designs and collaborative learning as a key trend accelerating higher education technology adoption as a short term while growing focus on measuring learning and redesigning learning spaces as mid-term trend. Blended learning design has been among the top trends for quite some time (p.4) along with other recent technology developments like games and gamification, flipped classroom, mobile learning, augmented and virtual learning, MOOCs, adaptive learning technologies and next-generation LMS among others. All these developments have significant implications for online pedagogy and course design.

Colleges and universities are the bodies for creating, preserving and advancing the knowledge. Over few decades educational institutions have undergone big transformations and a paradigm shift can be easily observed in governance or management, methodologies, nature and scope etc. (Robertson, 2010). This transformation can be witnessed in other two modes of education too: non-formal and informal. Even in this digital era, teachers and students have also been affected. Globalisation, internationalisation and the need for ubiquitous learning has given rise to different set of expectations from educational systems, demanding more flexibility in teaching and learning process and use of technology (Lai, 2011). The internationalisation of students, the need for intensive pedagogical support, integration of technology for instructional delivery and access to content anywhere anytime has put the demand on academics for newer roles and competencies. With 4th Industrial Revolution upon us, we need new skills sets for survival for future because of rapidly changing job markets. Many of the skills the students learn may not have any relevance within few years from now, same applies to teachers too. A shortage of critical skills needed for current and future workforce is very evident (CEDA report, 2015). A UNESCO report (2009) found a disconnect between use of new ICTs and their potential in teaching and learning (Alt-

back et al., 2009). This UNESCO report recommends certain skills, like reading and writing, problem identification, problem solving, the ability to engage in effective "complex communication" with others, the need to foster disciplined thinking, navigate ethical dilemmas, and the need to develop creativity and initiative. Bates (2015) also suggested certain skills which are required for the knowledge world: communication skills, independent learning, ethics and responsibility, teamwork and flexibility, thinking skills and Digital skills embedded within the knowledge domain in which learning takes place (p.16).

These developments (in technology, needs of students, emergence of new modes of education like MOOCs or flipped classrooms etc) have resulted in a change in approach to teaching. There is strong demand to integrate ICT into formal or face-to-face teaching and going blended or online on the part of teachers (O'Neill et al., 2004; du Boulay et al., 2008). Compounded by the developments like games and gamification, flipped classroom, mobile learning, augmented and virtual learning, MOOCs, adaptive learning technologies and next-generation LMS, teachers need to have certain skills and orientation to successfully design for these learning environments. This calls for certain pedagogical approaches guiding the teachers, instructors and tutors to have relevant technical skills to handle LMS or various technology tools and applications, effectively design, develop, facilitate, deliver and assess a course alonwith the ability to support the social and affective or emotional well-being of students (Redmond, 2011). Some of the popular pedagogical designs for e-learning environments are "learning by doing" (Schank, 1997), "problem-based learning" (Barrows, 1994), "case-based learning" (Chen, Rong-An, & Harris, 2006; Lynn, 1996), "learning by designing" (Naidu, Anderson, & Riddle, 2000), and "role-play-based learning" (Ip & Linser, 1999). Dabbagh (2005) suggested a Theory-Based design framework for e-learning where he suggested three elements to be presented as an integrated environment:

- Pedagogical models or constructs (e.g. open/flexible learning, distributed learning, knowledge building communities)
- Instructional and learning strategies (e.g. collaboration, articulation, reflection, role-playing, exploration, problem solving)
- Pedagogical tools or online learning technologies (e.g. asynchronous & synchronous communication tools, hypermedia & multimedia tools, Web authoring tools, course management systems) (i.e., Internet and Web-based technologies) (Dabbagh, 2005, p. 32).

Sharma and Mishra (2007, p. 7) suggested another pedagogical framework of e-learning: *Experience-Reflect-Interact-Construct* (ERIC). The ERIC framework recommends flexible delivery and provision of anywhere, anytime learning experiences (like reading of materials on the Web, listening to audio, watching video, and experiencing animations and simulations) for the learners. Then the learner attempts reflective activities followed by interactions with peer or tutors both synchronously or asynchronously. In the final phase the learner is involved in construction of knowledge by the learners through group work, projects, presentations, and other creative activities.

Ferguson et al. (2017) identified ten innovative pedagogies which either have impacted educational practices or might transform them in near future: Spaced learning (Building long-term memories in minutes); Learners making science (Volunteering to make science and act as a scientist); Open textbooks (Adapting openly licensed textbooks); Navigating post-truth societies (Epistemic education for the 21st century); Intergroup empathy (Understanding the perspectives of others); Immersive learning (Intensifying learning by experiencing new situations); Student-led analytics (Using data to help learners set and achieve their own goals); Big-data inquiry: thinking with data (Understanding the world

by working with large sets of data); Learning with internal values (Using students' interests to inspire learning); and Humanistic knowledge-building communities (Helping learners to develop knowledge). This year's report touches issues which are pertinent for online world where 'learners are faced with fake news, pseudo-science, 'post truth' and increasing tensions between some communities' (p. 6) and to teachers and course designers.

As educational institutions are going digital and learners have increased access to Internet and technology devices, the learning spaces are being redesigned and redefined (Adams Becker et al., 2017). The learners demand for greater flexibility, mobility and access when needed. Designing learning environments for these needs is attracting attention from the education providers. Course developers and designers need support and training for developing resources including text, audio and video. Best practices are being made available by some leading organisations (Like JISC) for planning, designing and developing appropriate online teaching and learning strategies.

With the growing demand for online programmes, teachers preparation become inevitable. Teachers need to be trained not only in use of modern technology, it covers a wide gamut of teaching, learning, professional development, instructional design, assessment practices, learner behaviour, teacher's competencies and support mechanisms. Online pedagogy is a big canvas and this book serves this purpose very well.

OBJECTIVES

The purpose, significance and contribution of this book have been presented in detail as an interview with Prof Linda Harasim in her Foreword. This book examines various dimensions of instructional pedagogy and course design for online environments. The chapters included in this IGI Global's Large Volume Summation Project have been previously published in *International Journal of Online Pedagogy and Course Design*. To be included in this volume, these were updated and enhanced in terms of latest data, new research in the field, analysis and conclusions based on new developments. These developments are very important because success of online course delivery depends on sound pedagogy and design. The authors in this book have researched on such issues like instructional design principles, learner behavior, technology tools, social media integration, learning management systems, online facilitation, reading comprehension, assessment of learning and affective domains in online learning. This book will be useful to learning designers, teachers, administrators, system developers and practitioners dealing with online course design and delivery.

OVERVIEW OF THE BOOK

The research studies presented in this book offer useful insights into various dimensions of online pedagogy and course design like online facilitation, online learner behavior, learner engagement, teacher's perception, integrating social media, and effective online teaching methods etc. Based on the focus of chapters, these have been placed in four groups, although there may be some overlapping in the theme these chapters represent: (1) online pedagogy and instructional design; (2) online pedagogy and managing instructional delivery; (3) online pedagogy and social media; and (4) innovating applications of online pedagogy. This book will introduce you to innovative applications of online pedagogy and course

design which engages learners, enhances learning attainments, builds digital learning communities through social learning, and creates learning opportunities to develop skills suitable for times to come.

Section 1: Online Pedagogy and Instructional Design

Section 1 (Online Pedagogy and Instructional Design) has five chapters and focuses on emergence of instructional design strategies, digital pedagogies, use of web 2.0 tools, and principles of instructional design which the teachers should follow for developing online courses. In Chapter 1, Pascal Roubides has discussed emergent technologies shaping instructional design encompassing various areas, from education and psychology, to computer science, communications, and general technology. He traces the developments in the field of instructional design beginning early twentieth century and goes on to discuss the learning environment, new learning designs and delivery models for the internationalized digital era we are currently in. He examines the design approaches and practices needed for adaptive learning, simulation technologies, social learning, mobile learning, cybernetics, gamification, and augmented and virtual reality. In the second chapter, Marianna Vivitsou looks at the values and purposes in digital pedagogies through a meta-analysis of teacher's belief system, reflection, intuition and the rational bases (like principles, research findings, scholarly contributions, and examined practices) a teacher uses to make decisions. Her research points out that teachers' thinking is metaphorical and thus an examination of teachers' metaphors is significant in understanding how the pedagogical thinking of teachers change. This pedagogical thinking is based on the values and goals of the curriculum and the lived experience of teachers. This transforms into pedagogy-related metaphors like organization, time, action and purpose. This chapter examines metaphorical structures which emerge when digital technologies are integrated into classroom practices through the lens of Blending Theory. In Chapter 3, Jeff Thomas and Paul Parkison establish the efficacy of using Web 2.0 Tools to engage content, promote self-efficacy, and their implications for intentional student learning. They discuss the ways and means of preparing pre-service teachers for twenty-first century teaching by integrating learning and experiences in an ever-changing Web environment by linking it to Technological Pedagogical Content Knowledge (TPACK) framework. Fourth chapter is by Diana Pérez-Marín and Silvia Tamayo-Moreno in which they discuss about computer applications as 'Pedagogic Conversational Agents' which interact with learners in natural language. This agent creates a procedure to generate (Spanish or English) sentences to be morphologically and syntactically analyzed by children in an interactive way so that students can work on their own, at their rhythm and with an infinite number of sentences. This chapter focuses more on methodology aspect to design the application. The results of their study are encouraging by showing that the students were able to talk to their computer as a new way of interactive computer assisted learning. Further, the students were motivated during their use of the agent when working on exercise for morphological and syntactical analysis and requested for more sentences even after the test was over. Next chapter pertains to examining the perceptions of teachers who develop k-12 online courses. In this chapter, Michael Barbour, David Adelstein, and Jonathan Morrison discuss the course development approach for K-12 online and blended learning courses. They highlight the role of instructional designers, web designers and project leaders in supporting teacher with appropriate tools so as to maximise teacher's creativity and ability in designing instruction for online courses. The authors give the mantra, "to use multimedia to enhance the content and not simply because it is available".

Section 2: Online Pedagogy and Managing Instructional Delivery

This section includes studies which focus on delivery of instruction. First chapter deals with an E-Learning Political Strategies (ELPoS) model which is based on two dimensions: (a) the direction of the political strategy (upward or downward) and (b) the scope of the political strategy (individual or group based). Celia Romm Livermore, Mahesh Raisinghani, and Pierluigi Rippa in their chapter present four short case studies on how a certain kind of e-learning behaviour or strategy can lead to a different outcome. The ELPoS model is based on the assumptions that E-Learning political strategies are affected by the identity of the initiator of the political activity, by the direction of the political strategy, and are moderated by demographic and situational variables, in addition to that the political behavior in the E-Learning context involves "influence attempts". Their research show that impact activities within the context of E-Learning are more effective when undertaken by groups than by individuals. Other implications are for class design, for example, if it is synchronous or asynchronous. Behaviour of teacher is quite influential on the political dynamics of the eLearning class where it can empower or dis-empower students. Wendy Fasso and Bruce Knight in next chapter examine affect in online learning. They suggest a framework designed to support participatory, collaborative, values-laden learning in online courses. They discuss how online learning spaces can be effectively implemented so that the affordances of the web for learning are used to enrich learning engagement. This chapter gives a new dimension to affective domain of learning in designing online courses. They further explain how to enhance course design by incorporating the taxonomy of learning objectives in the affective domain. Success of an online course depends upon effective online facilitation of instruction by the teacher. Li Hsien Ooi, Lay Huah Goh, Arathai Din Eak and Cheng Teik Ong present their research into tutors' perspectives on online facilitation of ESL courses in distance education, by basing their experiment on Gilly Salmon's 5-Stage Model . This chapter delves into the role of tutors in online facilitation of a course, challenges faced by tutors while facilitating online and best practices tutors can follow for this purpose. The authors suggest that an assessment of students' understanding of the different units of the course materials and assignments is a good strategy and accordingly they must provide their feedback. A better bonding between tutor and students can be created by remembering the names of students and to make learning more community-based than it being individualistic in nature. Another best practice identified by them is to identify and employ the best online tool for interactions and making learning effective by offering best possible assistance. Chapter 9 by Susan Conrad and Nada Dabbagh examines the significance of instructor feedback to students and what students want from this feedback. The authors warn of unintended negative consequences when the feedback strategies do not work, which can even lead to higher dropout rates in online courses. Different types of feedback like administrative, affective, collective, corrective, future-focused, informational, motivational, peer, personalized, self-regulating, Socratic, social, and technical have been explained. This research shows that students consider personalized feedback as the most helpful feedback type for their learning, especially when it was detailed, specific, and delivered in a timely manner. From instructor's point of view, positive and corrective information are reported to be the most common type of feedback. Another important recommendation from this study is to have a greater instructor presence in online course. Showing care and concern for the student's academic success is another recommendation. Yea-Ru Tsai in Chapter 10 examines the effects of a web-based Cumulative Sentence Analysis (CSA) instruction on university engineering students' English reading comprehension. The significance of this

study lies in the fact that students' academic performance significantly depends upon his/her reading ability. The student's reading comprehension performance in web-based environments is an important area to investigate as this will impact overall learning attainment of student. Tsai in this study reports that translation skill is closely related to reading comprehension, possibly because the process of translation requires reading comprehension and thus recommends that strategy of syntactic analysis must be embedded into an online system efficiently.

Section 3: Online Pedagogy and Social Media

This section has three chapters, each dealing with a different social media, Twitter, Blogs and Facebook. First chapter in this section examines the impact of use of twitter by the instructor on course performance indicators. Eric Fife, C Nelson and Theresa Clarke in this chapter find out how instructor's Twitter usage might influence learning outcomes. The results indicate that 'with higher Twitter usage, students reported increased learning from technology overall, a greater sense of classroom community, increased pedagogical affect, increased course effectiveness, and improved learning overall'. While establishing the pedagogical value of Twitter, they caution about 'thoughtlessly incorporating Twitter' for instruction. Gina May Ong and Wing Sum Cheung in next chapter (12th) make an investigation into primary school students' motivation in using blogs. This study reveals that when students are allowed to blog on selected tasks they enjoy doing, their motivation to learn increases. This has a great implication for online courses. Students feel excited about sharing their ideas and experiences with others. Another motivation which students expressed is the desire to see what their classmates blog about for example, personal reflections or recommendations of good books. Improving grammar and composition writing were other advantages of using blogs, students reported making less mistakes by understanding how other people write their sentences. The pedagogical significance of this study lies in its recommendations for course design by greater involvement of learners in the learning process. Next chapter is by Gómez-Hurtado Inmaculada in which she investigates the relevance of the Facebook network as a tool for development of the teaching-learning processes in the teacher-training classroom. Facebook is the leading social media tool and has been found to be effective in promoting social learning. Many individual teachers and institutions use it for instructional delivery purpose in addition to community building. This study shows that the teacher-student relationship can be affected by the use of a social network and in this study the classroom atmosphere improved through use of the Facebook network. To the teacher it provided information on common elements among the development of course content, classroom management and relationships among students. There were improved personal relationships between students and teacher with an overall improvement in classroom environment. From students' point of view the changes were for their professional and personal development. Students further reported positive use of Facebook for sharing knowledge with their peers and the teacher, increased ability to construct their own knowledge on the subject matter. On personal front, they reported it for better attitudes of collaboration, mutual respect and honesty, and making strong friendships. The author recommends incorporating a digital dimension or competence into the curriculum would sure led to significant learning.

Section 4: Innovating Applications of Online Pedagogy

Section 4 has five studies which showcase innovative applications of online pedagogy in course designing and delivery. Chapter 14 deals with Virtual Laboratory work. Göran Karlsson in this research tests the constructivist approach in science education by building a virtual laboratory to engage students for collaborative knowledge construction. This approach seems to have assisted the learners in understanding the phenomenon, however, may not be that effective in getting the meaning of that scientific concept under investigation in this experiment. A reason to this may be due to their not being knowledgeable about micro-concepts of their study and mastering the scientific language. This creates a didactical challenge for the teachers and significance of guidance and/or a tutor-led debriefing, explaining the concept, following the students' exploration of the online technologies. Another important implication of this work is that we can increase the number of guiding structures and aids which may lead to students thinking of right answer on a test, but it has threats for quenching students' constructive discussions and their discovery process. Chapter 15 is by Julia Parra and Mariam Abdelmalak in which they examine an approach to blend synchronous online (e.g., web conferencing) and face-to-face components in a single course. This study recommends adding and online option to a face-to-face class so that students based on their needs can make a balance between work, family and course. Another positive outcome of this study is meeting the demands for students' different learning styles and strategies. The students reported an increased access to course content and instruction. This study also reveals the value of offering multiple delivery modes and allowing students to choose their mode of participation in the course, leads to them having a control over their own learning. The combination of the face-to-face approach, the online approach, and class recordings is a measure to increase access to course content and instruction. Third chapter in this section pertain to 'Collaboration Driven Management Education' in which Owen Hall, Jr and Kenneth Ko describe the development and implementation of collaborative networks. They recommend Cloud-based collaboration to share and exchange ideas for learning. Faculty training, mentoring and development should be taken on priority. In Chapter 17, Kimberley Tuapawa does a phenomenological interpretation of students' online technology experiences with other students in blended tertiary environments. The study recommends adopting strategies for more use of social media-like functionalities like notification and messaging functionalities into LMS, creating rewards or acknowledgement system that encourages students to deliver online support to their peers, providing guidelines to effective LMS use, and careful planning and execution of live sessions and recordings. In the last chapter, Anabela Mesquita and Paula Peres present a case for understanding the learning environment evolution in terms of course and technologies integrated at the Accounting and Business School (ISCAP) of the Polytechnic of Porto (P.PORTO). They have identified various critical success factor in the adoption of blended learning like organizational strategy, structure, time management and credit hours (flexibility), technology, evaluation, and pedagogical and technological support at institutional level. On individual or personal front, time to develop materials, blend them for online delivery, pedagogical and technological training are the chief factors.

CONCLUSION

Successful implementation of online learning depends upon several factors, like effective course planning, designing, production, delivery, assessment, support and credentials or accreditation. Resource planning is crucial (material and human) to all dimensions of online course development. It should not be a simple repository of online materials to be accessed by an individual with no guidance on how to make best learning. Affective domains of learning are quite important and thus need to be paid serious attention. An effective online course should promote active learning, a suitable pedagogy will build a strong scaffold where learning becomes meaningful. Appropriate and timely feedback increases motivation to keep going among the students and thus reduces dropout rates. Use that technology which is simple, reliable and easy to use by the students and which assists in enhancing learning. The studies presented in this book offers innovative applications of online pedagogy assisting course designs which engages learners, reduces technical problems, and offers human support for effective realization of course outcomes.

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