


Book Review

Diverse Learning Opportunities Through Technology-Based Curriculum Design

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With the technology advancements in education, especially computer-related developments, and the worldwide trend toward integrating technology into course curriculum in order to prepare students for future workplace (Carpenter & Agrawal, 2018; Moller & Crick, 2018), it is very important for educators to acknowledge the importance of adjusting their curriculum to align with the current trend. As curriculum should reflect government educational policies, institutional strategies, and learning priorities, when exploring the notion of technology-based curriculum, the book “Diverse learning opportunities through technology-based curriculum design” could offer some in-depth insight for readers.

This book is divided into three sections. Section One sets the foundation for technology in current curriculum. The first chapter author presents a solid introductory work for readers who want to follow the important innovations in the history of educational technology. Reminding readers about how people learned before there were blackboards, electricity, computers and the Internet leads to more appreciation of current technology and the convenience it brings. Then the author stretches further to bring in what the future may be like in the education field. In the second chapter, the author approaches the discussion of “What is technology?” from a different angle. A brief history is presented regarding how governments and policy makers have tried to help schools integrate technology, mainly computer-related technology, into daily courses with their various programs throughout the years. However, early attempts brought more failures than ideal results, and policy makers shifted focus from merely providing the hardware such as computers and devices, to training teachers about changing their mindsets on utilizing software and collaborating with software developers in order to create practical products, so that teachers could possess knowledge regarding technologies to associate the right kind of tools with the appropriate lessons.

Section Two discusses the demands on education of modern learners. The focus in chapter 3 is the various aspects of today’s demands on education. With the increase of teacher’s seniority and the

diversity of students' backgrounds, plus the everchanging advancements in technology, it becomes more difficult for educational institutions and faculty to increase student learning. The author lists a series of topics such as equipping students with essential skills for the 21st century, the importance of integrating distance education, the assistance which should be provided to teachers by educational institutions and policy makers, and the challenges teachers have to face when dealing with diversified student composition.

The authors in chapter 4 concisely compile how learning and technology integrates, and real actions implemented by K-12 teachers nowadays. As these educators are facing the learners from generation Z, it is imperative for all stakeholders, including teachers, students, parents, administrators, developers and other affiliates, to make effort on this learning-technology integration. The authors start by introducing framework and common standards designed by international organizations, then move on to topics of technology integration, models, and popular pedagogies that are currently employed, with the aim to help K-12 instructional designers improve their curriculum. In chapter 5, the authors present a special case regarding how technology-integrated curriculum could correlate with elementary students' academic performance on statewide achievement tests and computer literacy skills. Although the results of their experiment did not produce evidence of positive influence of technology-integrated curriculum, they did show how disadvantaged the students would be without the help of government funding, without corporate donations of physical equipment such as computers and software, and crucial investment in teacher training. The authors paint an ideal picture in which every participant has an important role in technology integration and show readers all sorts of aspects that should be considered regarding the implementation of technology-integrated curriculum.

The last section of the book focuses on technology in action. Chapter 6 starts with an interesting case study to demonstrate how K-12 teachers approach the various topics surrounding technology use in life and in school by students. The authors divided teachers into three online chat groups, all with different agendas, provided them with course readings or related news topics, and let them conduct free-form interaction. Content analysis was used to examine teachers' online chats and the results reveal useful information for understanding the barriers to technology implementation in schools, students' reaction and feedback, and teachers' tendencies or preferences for using technology in the classroom. Adopting anonymity brought vitality to the discussion, as teachers were more willing to share their perceptions, values, and philosophies regardless of their negative or positive attitudes toward technology knowledge and reform topics.

The next chapter provides an overview of how the theoretical framework and technology-integrated activities support future teachers (candidates) in an instructional design and technology integration course. The authors apply Technological Pedagogical Content Knowledge (TPACK), Understanding by Design (UbD) framework and ASSURE model, and observe how course activities influence candidates' design of instruction in mathematics. The results from analysis of candidates reveal that all candidates aligned activities to curriculum standards and the barriers to TPACK seemed to be candidates' mathematics content and mathematics-specific questions in early and mid-semester.

The authors in chapter 8 explore the design of adaptive learning technology in big data trends. With the help of an analytic process, the adaption of social media usage and extraction from enterprise resources data could enhance pedagogy and technology skills to support better teaching and learning processes in the higher education context. The authors present several stages to achieve an analytic process for big data emerging technologies; however, the main concepts are a bit ambiguous for readers who are just encountering the subject of big data analytic processes and the stifflingly repetitive writing style is a bit unfriendly. It would be of great help if the authors could refine the contents into a more orderly fashion.

Chapter 9 presents findings from interviews with nontraditional students and supplemental instruction program leaders regarding their experiences, support from their college, teaching

activities and which forms of technology helped them to succeed. The results help both students and educators to identify the program decisions or particular elements that students felt most strongly about and can serve as suggestions for future adjustments. The last chapter presents a case study to see if direct teaching of media literacy skills has significant influences on six graders' recognition and understanding of the persuasive techniques used by current mass media. The experiment is also designed to test if participants' characteristics have impact on their performance. The study reveals significant findings such as the close relationship between exposure to media literacy education and students' performance. However, the eight-page long description regarding the test assessments is a little too fragmented for fluid reading. It would be helpful if the contents were segmented into separate tables.

Overall, the book provides a view of the history of technology and learning, provides current best practices for reference, explores dilemmas experienced by diverse stakeholders and offers a glimpse into future actions and resources in this area which could be helpful. Although there seems to be reiteration of some topics, this does not devalue the focus and vision of the book. From an editorial consistency perspective, some revision is called for. The author of the preface mentioned that this book contains 12 chapters; yet only ten chapters are included in the table of contents. In addition, the chapters described in the preface do not match with the order of individual chapters, plus the supposed last chapter (12) is missing from the introduction in the preface.

Diverse Learning Opportunities Through Technology-Based Curriculum Design

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