

Preface

The rapid expansion of online delivered courses and programs intertwined with the proliferation of learning technologies and social media continue to redefine and push the boundaries of education. Also, this paradigm shift has redefined the traditional student body to a new norm as non-traditional learners. When theoretical frameworks are mashed in the mosaic of learning, we know that the following assumptions are the basis of today's learning:

1. Learning is effective when it combines some form of digital content and learning technologies.
2. Learning is effective when pedagogical principles are aligned with digital content and learning technologies.

Digital content and learning technologies have transformed the traditional learner living on campus to a non-traditional hybrid digital learner with opportunities to reflect, experiment, collaborate, and experience with multiple deliveries and learning styles. Implementing transformative digital content and learning technologies to engage learners require a level of digital competence and understanding of teaching strategies from the instructor beyond what is expected from a traditional instructor (Bull & Patterson, 2016). This level of competence of a lesser degree is also expected from the learners as they grow through the progression from novice to expert users. Acquiring the skills necessary for instructors to effectively transition from traditional teaching to digital delivery continues to slow down the full implementation and effectiveness of digital learning. Therefore, it is incumbent upon the instructor as knowledgeable expert in the delivery process to prepare the stage for learning.

Technological pedagogical and content knowledge (TPACK) (Mishra & Koehler, 2009) provides an effective model to guide instructors in promoting opportunities for reflection, experimentation, collaboration and effective use of multiple intelligences. On the other hand, the learner is expected to demonstrate skills required to generalize from the social everyday engagement with digital and social media to a learning environment. As it relates to the learner, assumptions are made that effective use of technology in social environments and knowledge about technology translate to effective use of technology in learning settings. This flawed assumption has impacted the quality of online and digital delivery as less training is provided to learners before engagement in learning (Bull, 2014).

Transformative digital content and use of learning technologies are effective when they are aligned with theories. TPACK, the constructivist approach, Universal Design for Learning, and self-efficacy theory are few of the key framework that play a significant role in the transformative delivery of digital content and learning technologies. The constructive approach deals with how digital content is aligned with learning technologies to engage the learner in rich collaborative environments. The six constructivist

tenets when integrated with digital content and learning technologies experiences provide an environment for optimum learning (Bull, 2010):

1. Align digital learning with the competencies of the content
2. Promote digital learning through active involvement
3. Digital learning is effective through collaboration with others
4. The learner should have personal autonomy and control over digital learning for exploration and alignment with prior knowledge
5. Digital Learning should promote personal growth
6. Digital learning outcomes should be grounded in perspectives and an understanding of the learning outcomes.

Similarly, assessment is key to a successful transformative implementation of digital content and learning technologies. Universal Design for Learning provides a framework to assess the effectiveness and learning outcomes of transformative digital content and learning technologies. Additionally, for transformative digital content and learning technologies to significantly impact learner all stakeholders must demonstrate positive self-efficacy. Bandura's (1977) defines self-efficacy as an information processing activity that involves reciprocal learning variables. Bandura identifies four motivating factors that could impact effective integration of transformative digital content and learning technologies: The affective state of the learner, positive or negative; Meaningful enactive experiences gained by the learner at any point of the learning process; Meaningful vicarious learning experience gained from the learning; and The impact of verbal persuasion on the learner by knowledgeable experts.

The intertwine relationship of knowledge, best practices, and theories are key ingredients for an effective transformative digital content delivery model aligned with learning technologies. Therefore, the *Handbook of Research on Transformative Digital Content and Learning Technologies* examines best practices to support learners, instructors and institutions in the delivery of digital content and effective use of learning technologies to promote teaching and learning as well as engage learners.

Chapter 1 presents a model for professional development to increase the critical attribute of a successful professional development: self-efficacy. The chapter further demonstrates how the TPACK approach is aligned with self-efficacy and implicit use of technology in teacher education to promote learning.

Chapter 2 examining the benefits and challenges of iPad use to help English Language Learners (ELLs) develop language proficiency. The findings of the study show that iPad integration helped make learning engaging, provided various options appropriate for learners' needs, and promoted learning outside of the classroom.

Chapter 3 examines how middle grades teachers' integration of one-to-one technology moves beyond drill and practice and uses apps as extension activities. The Gradual Increase of Responsibility (GIR) model (Collet, 2008) is used as the overarching instructional coaching model professional development to support engagement and growth.

Chapter 4 addresses how systematic integration of ICT literacy into the curriculum at the general education level and within each academic discipline promotes ICT literate students with the set of knowledge, skills and dispositions required for formal instruction.

Chapter 5 addresses how a novel interpretation of learning technology to include models and frameworks of support, such as Universal Design of Learning (UDL), to maximize access to instruction while barriers are minimized and used as a framework for learning.

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Chapter 6 addresses the Digital Wellness Model (Royal, 2015) and provides recommendations for how the model is implemented by users of technology. The model addresses how technology can be used to promote physical health and provides recommendations on how to address the negative impact of the use of technology on the physical health of individuals.

Chapter 7 addresses the impact of asynchronous learning in higher education, especially with MOOCs. It addresses how fully online options may reduce cost, but may not be the best options for underserved populations. However, a well-designed online course with effect strategies may have a positive impact on underserved populations.

Chapter 8 addresses how cloud computing has impacted higher education in ways to reduce storage cost, enhanced security, provide accessibility of learning materials, promote easy communication and its impact in tutorial classes to improve learner-centered teaching pedagogies.

Chapter 9 investigates technological challenges faced by early elementary educators as well as opportunities to transform digital content in early science education. Using the TPACK framework, findings show that implementation of digital enhanced inquiry-based science lessons in early elementary grades present educators not only with unique challenges, but also with the potential for sparking scientific curiosity of elementary learners for vested interests in future years.

Chapter 10 addresses the motivation associated with the usage of social media as alternative tools to promote eLearning program at a local private university in Kenya. Limited access to traditional online commercial platforms and learning management systems (LMS) are barriers to eLearning integration in Kenya. The chapter discusses how commonly used social media apps are exported into educational settings to promote learning.

Chapter 11 discusses a three-phase model of multicultural online project team development to engage students in digital learning environments in higher education. The process focused on the examination of empirical studies from 1998 to 2014. By synthesizing critical process factors, an integrative phase model with multicultural online project team processes was created to support learning.

Chapter 12 discusses how learning by making has evolved due to the development and confluence of growth in computing, communications technologies, pedagogy, and library science. The Makerspace Activity Process (MAP) framework illustrates how makerspace activities are intertwined with networking practices to facilitate and assess learning.

Chapter 13 investigates the contribution of learner characteristics to academic performance among distance learners. Findings show that learner characteristics were related to academic performance in distance learning. Also, the chapter recommends that universities profile distance learners' characteristics and align student needs with all the instructional processes of distance learning to effectively deliver.

Chapter 14 discusses the integration of WebEx, MindTap/Coursemate, learning technologies, to enhance the delivery of a master's level group counseling online course and by encouraging active engagement of both the students and instructor alike. Guided by Bandura's theory, this integration model enhanced the learning environment.

Chapter 15 discusses how mathematics educators can promote prospective teachers' active learning and professional growth by bringing together the Flipped Classroom method with video content on teaching and learning as well as workplace learning opportunities in a pedagogy course. The professional learning of prospective teachers is framed according to the components of the Pedagogical Content Knowledge (Park & Olive, 2008).

Chapter 16 examines the use of disciplinary literacy in elementary and middle grade science classrooms that participated in a one-to-one iPad initiative. The integration promoted strong collaborations

and observational data. Additionally, based on the study, learning is enhanced with strong science disciplinary literacy instruction in teacher education programs, as well as greater collaboration among literacy teachers, science teachers, and researchers.

Chapter 17 addresses how hearing assistive technology is used to improve school success for typically developing children, second language learners, children who are hearing impaired, and children with normal hearing thresholds but with significantly poorer auditory performance, such as children who are diagnosed with auditory processing disorder, autism spectrum disorder, attention-deficit hyperactivity disorder, and language disorder. The chapter also encourages collaboration between educators and professionals on the use of technology to ensure children have access to auditory information in the classroom.

Chapter 18 discusses how the process of learning is empowered when the instructor is able to identify, develop, and apply appropriate digital media content that motivates and encourages learners. The study revealed that learning becomes interactive and effective when a video is presented in the style of hypermedia. Learner's perceptions rating show that learners perceived the video format as satisfactory, helpful in knowledge retention, motivational and an enhancement of learning.

Chapter 19 discusses why the educational sector must focus on new trends in executive leadership, shifting paradigms, innovative approaches to distributed leadership, and management practice. Educational leaders must embrace increased digitization and societal issues, global open online and distance learning, and finally leadership in global open online learning arenas. Also, leaders must embrace and be in the forefront in the areas of teaching, research, governance and society for the transitions to personal global open online learning.

Chapter 20 presents a blueprint to train, prepare and transform single mothers into Licensed Practical Nurses via online to reduce dependence on public finances and to enhance their self-images. The blueprint explores learning styles and program services.

In summary, as transformative digital content and learning technologies become the norm in educational settings, the seamless integration requires creative strategies, focused and prepared instructors, informed learners and institutions with leaders prepared for the transformative integration. To this end, the focus of this handbook explores the innovative ways to integrate transformative digital content and learning technologies in educational settings. This handbook can help educators benefit from the understanding of the intertwined relationship of digital content, theories, and learning technologies.

Additionally, this handbook will provide a wide range of strategies and frameworks to help educators and other educational researchers examine the benefits, challenges, and opportunities associated with *Handbook of Research on Transformative Digital Content and Learning Technologies*. Finally, this handbook is intended to stimulate reflections on effective strategies to enhance and implement digital content and learning technologies.

Jared Keengwe
University of North Dakota, USA

Prince Hycy Bull
North Carolina Central University, USA

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