Preface

CONTEXT AND PURPOSE

The infiltration of technology in everyday life and its spillover to work have created new communication avenues as well as innovative opportunities to learn. As a result, technology has begun to redefine the nature of teaching and the scope of learning. The manner in which institutions of higher education serve their student populations has evolved with the advent of online learning, Web 2.0 tools, and emergent technologies. Likewise, PK-12 schools have continued to expand technology resources and availability, which has rapidly changed the workplace environment for teachers. How have teacher education programs adapted to meet the changing expectations for technology-mediated teaching and learning? The manner in which teacher education programs have navigated these new spaces for learning serves as an important dialogue for exploring new possibilities for teaching and learning in the 21st Century. Thus, the focus of this book is to create a forum for examining the new teacher preparation classroom.

Over the past decade, the World Wide Web has become a critical tool for preservice teachers to utilize in their teaching and learning experiences. National efforts have been made to encourage technology integration in teacher education with expectations for frequent and successful applications with K-12 learners. One consequence has been a growing trend in higher education to provide students with more online educational opportunities. While online learning has become pervasive in many fields in higher education, one area in which it has been somewhat slow to catch on is teacher education, resulting in fewer opportunities for technology-mediated learning experiences in K-12 classrooms. However, for a variety of reasons (e.g., technological advances, budgetary concerns, technological expectations of students), teacher education programs are increasingly implementing online components in their programs. While this trend is expanding, little research has empirically explored the effectiveness of online education in teacher education programs. In response, this book brings together a collection of research examining various forms of and experiences with online learning in teacher preparation. Furthermore, researchers explore the utility and versatility of web-based tools for training teachers in the use of technology mediated learning tools with K-12 students.

It is important to understand the theoretical, pedagogical, technological, financial, and logistical issues, as well as management approaches, instructional delivery options, and policy considerations needed to create quality online teacher education programs. One purpose of this book is to present information about the current practices and research in online teacher education programs, while also presenting opportunities, methods, and issues involved with implementing online learning opportunities. This book presents a discussion of issues that have arisen when traditionally face-to-face teacher education programs have
modified their practices to include online components. Another objective for the book is to discuss issues related to evidence of student learning and assessment in the context of various online aspects of teacher education programs. Furthermore, the book is a resource for disseminating information about current research related to online practices in teacher education programs and effective technology tools that support learning outcomes. A final objective of this book is to present empirical evidence of preservice teacher learning and assessment in the context of various online aspects of teacher education programs.

**IMPETUS**

The editors of this book embarked several years ago on an effort to create meaningful online solutions for perceived barriers to online teacher education. When online courses were first introduced at the institution in which they were all employed, it was narrowly understood as a replicate tool for mimicking current coursework. Strict steps were taken to ensure the similarities between course delivery methods resulting in asynchronous only learning platforms for online courses. The epistemological stumbling block was how to provide observations of teaching, typically face to face in nature, in an online asynchronous format. Given this limitation, the prospect of developing a 100% online program seemed insurmountable. Concurrently, institutional decisions were made to restrict online coursework in teacher licensure to only lateral entry teachers. Internal contradictions of using online learning to expand programs surfaced as enrollment in the online program depended on a student’s proximity to the university or employment status.

As state-wide and even international interest grew in a 100% online teacher preparation program, questions emerged as to whether enrollment restrictions should be maintained. To exacerbate the problem, state demands for increasing the number of highly qualified teachers to fill classroom shortages became a mandate. Thus, this book’s editors sought to create a technology-mediated solution that might allow them to improve the quality of online learning and address aforementioned issues. They used as their guiding principle the view that technology could create new spaces and places for learning that did not mirror current processes. They initiated efforts to expand delivery modes to include both synchronous and asynchronous tools in addition to emergent, web-based technologies. The outcome of the editors’ research and development has been *ROGI: The Remote Observation of Graduate Interns* and *WiTL: Windows into Teaching and Learning*. Through the work and study of many researchers whose ideas served to inform our efforts, they came to the understanding that others could benefit from a collection of research that would showcase the possibilities of technology in teacher education as well as address how challenges can be overcome.

As online learning becomes ubiquitous in higher education and in PK-12 schools, teacher preparation programs can be at the forefront of innovation rather than the traditional role of lagging behind with technology integration. Teaching and learning are at the core of education; therefore, leaders in pedagogy can pave new pathways for how technology can re-envision work in academic, schools, and in expanding, globally dynamic communities. The contributions of this book are timely ideas for guiding the development of these new learning spaces and in defining the role online learning can and should play in teacher education in the 21st Century.
HOW TO USE THIS BOOK

Each section contains several chapters supporting the section theme. Beginning with issues and trends in online teacher education and concluding with an exploration of technology tools for moving forward in the evolution of online teacher education, this book presents research and theoretical guidelines regarding online teaching and learning.

The Roadmap

The first section examines Issues and Trends in Online Education. These chapters provide a context for exploring the innovations of praxis that technology engenders and the growing pains that accompany these changes. As the trend for growth in online learning continues at an increasingly fast pace than in the last few decades, the insights shared from these authors are important lessons to consider as online learning becomes even more pervasive in teacher education programs. Terry Atkinson presents, in the opening chapter, her experiences as a university instructor who navigated the shift from traditional teaching to online instruction. The Journey from Dissenter to Advocate: Insights Gained While Teaching Online is an eloquent presentation of the evolution of pedagogical beliefs and practice for meaningful online instruction. Next, Teresa Petty, Tina Heafner, and Richard Hartshorne discuss the evolution of a remote online observation process and relevant research findings that have shaped the project over the course of four years. In Remote Observation of Graduate Interns: A Look at the Process Four Years Later, the authors describe how this process remains an active synchronous observation method for preservice teachers, how it has progressed as an evolving technological tool, and the resulting shifts in college policies to adopt its utility. This section concludes with a chapter titled, Perceptions of Preparation of Online Alternative Licensure Teacher Candidates, which examines a comparison of online and face to face teacher preparation programs. The authors of this chapter, Joyce Brigman and Teresa Petty, investigate how to most effectively produce teachers possessing a high sense of preparedness for the classroom, regardless of the licensure pathway and modes of delivery, including both face-to-face and online learning.

Section two, Online Teaching and Learning Initiatives in Online Teacher Education, brings together innovative ideas for addressing current challenges in teacher education. In the first chapter, Virtually Unprepared: Examining the Preparation of K-12 Online Teachers, Michael Barbour, Jason Siko, Elizabeth Gross, and Kecia Waddell begin by providing an examination of differences between teaching online and teaching in face-to-face environments, as well as current teacher education initiatives targeted at both preservice and inservice teachers, followed by an evaluation of current initiatives to formalize online teaching as an endorsement area. The chapter concludes by outlining, based on results of previous initiatives, a course of action that all teacher education programs should consider adopting. In the second chapter in this section, Yigal Rosen and Rikki Rimor provide readers with a look at the rationale, implementation, and assessment of collaborative learning in online teacher education programs and present the conditions for effective design of collaborative learning for pre- and in-service teachers. In Teaching and Assessing Problem Solving in Online Collaborative Environment, these authors describe examples of how the collaborative learning environment helps prepare teachers for instruction in technology-rich environments. In the third chapter, Online Teacher Education: A Case Study from New Zealand, Ann Yates reports research on a program in New Zealand which examined experiences of nine beginning teachers who completed their initial teacher education in the online mode, and also reported
participant perceptions during their first sixth months of teaching. A major purpose of the program was to provide an opportunity for Māori (New Zealand’s indigenous people) to become high school teachers. Furthermore, Yates addresses major advantages and disadvantages found, which aligned with much of the existing research related to online teaching and learning. The last chapter in this section, *Training Teachers for Virtual Classrooms: A Description of an Experimental Course in Online Pedagogy*, provides a starting point for those wishing to create their own courses in online pedagogy. Wayne Journell, Melissa Beeson, Jerad Crave, Miguel Gomez, Jayme Linton, and Mary Taylor describe an experimental course designed to train teachers for virtual instruction. Topics in the course included the history of online education, online learning theories, the creation of online communities, online assessments, and ways to differentiate online courses for learners with special needs. Students were also afforded opportunities to put theoretical knowledge into practice by experiencing various forms of synchronous and asynchronous communication and designing their own online course.

The third section, *Supporting Online Learning in Teacher Education through Collaboration*, examines the role and importance of collaboration in online learning. In *Promoting Collaborative Learning in Online Teacher Education*, Vassiliki Zygunis-Coe discusses the importance of collaborative learning in online teacher education. The author provides details on course design issues, instructional practices, benefits and challenges associated with collaborative learning in an online teacher education course. Zygunis-Coe also discusses implications for further development and evaluation of collaborative learning in teacher preparation programs. Next, David Dunaway discusses the various ways that Web 2.0 tools can be used to create virtual cooperative learning experiences for aspiring teachers. In *Creating Virtual Collaborative Learning Experiences for Aspiring Teachers*, Dunaway discusses the utilization of these tools referencing his own experiences with the implementation of these tools in an online Masters of Administration course. He explores ways in which colleges of education can support reflection and collaboration while diminishing feelings of isolation of classroom teachers. This section concludes with a chapter titled, *Cyber-Place Learning in an Online Teacher Preparation Program: Engaging Learning Opportunities through Collaborations and Facilitation of Learning*. Victoria Cardullo explores literature supporting collaborative learning in online teacher preparation programs. An investigative look at the implications of learner-centered and place-based approaches to teaching is taken. In this chapter, it is the author’s intent to offer guidelines for transference of classroom best practices to a cyber-place learning environment that will align with teacher preparation programs.

The fourth section of the book, *Literacy Education in Online Learning*, provides a specialized view of how literacy learning is formalized in an online environment. This section begins with an examination of unique attributes of non-traditional learners. Dixie Massey describes in her chapter, *Differentiating Instruction for Adult Learners in an Online Environment*, the limited preparation of online instructors and the issues that arise when they encounter adult learners. She presents first the limitations of existing online instructional practices for meeting the needs of these diverse distance education learners and concludes with recommendations that differentiated instruction is a viable response for making content, processes, and learning accessible to adult learners. The second chapter in this section, *Teacher Education in Online Contexts: Course Design and Learning Experiences to Facilitate Literacy Instruction for Teacher Candidates*, describes instructional practices used in six online literacy courses for preservice and inservice teacher candidates. Salika Lawrence describes instructor roles as including pedagogue, technologist, and evaluator, all in an online literacy program. Although the course designs were highly structured, the instructor incorporated multiple resources to support diverse learners, to foster independent learning, to promote critical thinking and reflection on how instructional strategies can be used in
K–12 classrooms, and to facilitate small group collaboration through authentic problem-solving tasks. This section concludes with a chapter by Bruce Taylor and Lindsay Yearta. In *Putting Multiliteracies into Practice in Teacher Education: Tools for Teaching and Learning in a Flat World*, the authors present a pedagogic framework or metastructure for applying Multiliteracies to teacher education and by extension to P–12 classrooms. Multiliteracies, a term coined by scholars who published under the name The New London Group in 1996, provides a theoretical foundation for applying new texts and tools to teaching and learning; however, much of the scholarship around Multiliteracies remains in the academic and theoretical domain. Taylor and Yearta recommend practical and integrative online literacy course tasks that promote authentic applications of technology-mediated multiliteracies.

**Comparing Delivery Options in Teacher Education**, the fifth section of the book, examines the various models of instruction that online learning platforms offer. In *Comparing Delivery Options in Teacher Education*, the authors present data that were collected to evaluate the extent to which pre-teacher education students developed understanding of critical information related to human development factors, psychological, sociological, and policy foundations of teaching students with special needs. Student preferences in learning and the extent to which students developed comparable perceptions of preparedness for the future teaching roles is also discussed. The last chapter in this section is *Examining Student Behaviors in and Perceptions of Traditional Field-Based and Virtual Models of Early Field Experiences*. In this chapter, Hyo-Jeong So and Emily Hixon examine student behaviors in and perceptions of traditional field-based and virtual models of early field experiences in teacher preparation programs. The authors discuss various behaviors and student perspectives related to each model of early field experiences, suggesting that a virtual field experience that utilizes video-based cases may promote reflective practices, which could be especially beneficial to preservice teachers.

The sixth section of the book, *Innovative Online Teaching and Learning Practices in Teacher Education*, presents research-based ideas of new ways of integrating technology. Luke Rodesiler and Barbara Pace co-author the first chapter, titled, *Preparing Pre-Service English Language Arts Teachers to Support Literacy Learning with Interactive Online Technologies*. The authors of this chapter discuss a framework for integrating online learning opportunities into an English teacher education program. Efforts focused on extending pre-service secondary English language arts teachers’ understandings of what constitutes literacy and what counts as text in the secondary English language arts classroom in a blended technology- and media literacy-focused methods course. Specifically, methods of encouraging pre-service teachers to consider the kinds of literacy events they might design and literacy practices they might promote to support literacy learning with interactive online technologies and popular media were addressed. Next, Drew Polly presents results and implications of a longitudinal study of a mathematics methods course for teacher candidates taught in both hybrid and 100% asynchronous online formats. In *Designing and Teaching an Online Elementary Mathematics Methods Course: Promises, Barriers, and Implications*, he expounds upon findings that participants valued the amount of support provided by the
instructor and communication with classmates, had mixed comments about having to take ownership of their learning, and disliked the amount of work in the course. Lastly, Polly shares participant work sample experiences during their clinical projects as examples of online learning outcomes. The third chapter in this section, *Taking Action Research in Teacher Education Online: Exploring the Possibilities*, explores online tools that can facilitate distance action research coaching. In an effort to provide teachers with a vehicle to engage in this professional development, as well as raise teacher voices in educational reform, Nancy Dana, Desi Krell, and Rachel Wolkenhauer discuss action research in teacher education. As the systematic, intentional study by teachers of their own praxis, these authors describe how critical and powerful research-based professional development can be for practicing teachers. The authors extend the coaching of action research to online environments and examine the implications. Furthermore, the authors provide possibilities for negotiating challenges of time and space while enhancing both the quantity and quality of the teacher educator’s action research coaching opportunities. The fourth chapter in the section, authored by Kara Dawson, Cathy Cavanaugh, and Albert Ritzhaupt, provides an introduction to ARTI, *Action Research for Technology Integration*. ARTI is an online tool designed to support the merger of action research and technology integration. In *ARTI: An Online Tool to Support Teacher Action Research for Technology Integration*, the authors address the theoretical foundation of ARTI, the conceptual design of ARTI as a tool to provide: (1) an online scaffold for teachers to inquire about how their technology integration practices, (2) a mechanism to synthesize action research information from multiple teachers, and (3) a mechanism to capture evidence of student learning within technology integration inquiries. Lastly, examples of the implementation and implications of ARTI, along with future possibilities, are discussed. The last chapter in this section, *Improving Student Learning in a Fully Online Teacher Leadership Program: A Design-Based Approach*, describes the methods in which faculty in a fully online Master’s program in teacher leadership used a design-based approach, grounded in theory and informed by data, to iteratively improve core courses and student learning from them. Specifically, the authors, Scott Day, Leonard, Karen Swan, Daniel Matthews, and Emily Boles, discuss revisions of courses to meet Quality Matters (QM) standards for online course design, as well as incremental and ongoing revisions related to course implementation and based on student responses to the Community of Inquiry (CoI) survey.

The final and seventh section in the book, *Moving Forward*, describes innovative practices that have the potential to chart new pathways for teacher education programs and in schools through online and Internet tools. The first chapter, *Puttering, Tinkering, Building, and Making: A Constructionist Approach to Online Instructional Simulation Games*, addresses instructional simulation games as models of the real world that allow students to interact with events and objects that are normally inaccessible within a classroom setting. Joe Feinberg, Audrey Schewe, Christopher Moore, and Kevin Wood examine the critical role of the teacher in determining the success or failure of modeling in a classroom environment, as well as the importance of teacher educators to effectively model how to implement instructional simulation games in the classroom. The authors conclude with a discussion of the role of constructionism and the benefits of incorporating modeling in teacher education. The second chapter, by David Gibson and titled, *Teacher Education with simSchool*, introduces an innovative online learning platform for the preparation of teachers. Through simulations, which address some of the systemic challenges of teacher education in the U.S., Gibson contrasts traditional course-based online learning experiences with a simulation approach to four areas of teacher preparation: conceptions of teaching and learning, the organization of knowledge, assessment practices and results, and the engagement of communities of practice. He also outlines a rationale for the new approach based on self-direction and personal validation in a complex
but repeatable practice environment, supported by emergent interdisciplinary knowledge concerning the unique affordances of digital media assessment and social media. The final chapter in this section and in the book describes one of the projects mentioned earlier in the preface. Tina Heafner and Michelle Plaisance present Windows into Teaching and Learning (WiTL), a project that captures the nuisance of online learning as a method for transforming school-based clinical experiences in teacher preparation programs. *Windows into Teaching and Learning: Uncovering the Potential for Meaningful Remote Field Experiences in Distance Teacher Education* outlines the theoretical context in which the project was conceptualized and developed. The authors overview the challenges facing colleges of education in providing meaningful and relevant clinical experiences to pre-service teachers enrolled in online distance education courses as the impetus of WiTL. They share the potential impact of WiTL as a practical tool for facilitating purposefully integrative clinically-based online coursework.

**CONCLUSION**

In the spirit of the words of contributing authors Taylor and Yearta, “conclusions” seem more like “intermission” rather than an ending to ideas shared this book. This collection of chapters captures past, current, and evolving applications of online learning tools and practices in teacher education. The contributing authors present research to guide their understanding of the effectiveness and utility of course designs, program organization and the overall effectiveness of online instruction. They question the viability and utility of online and technology-based tools as well as the methods employed for preparing teachers. While there are mixed results in their studies and applications, they overwhelming conclude that online learning is here to stay. The issue that they consistently grapple with is how can teacher educators embrace the possibilities of technology to enhance the quality and effectiveness of preparing teachers for the rapidly changing world preservice teachers will encounter in 21st Century schools. The insights they share can positively impact future directions for online learning and serve to pave new pathways for learning in higher education. Therefore, the intermission begins with the final chapter in this book. As readers look forward and learn from these innovations, they can begin to shape the new teacher preparation classroom for the challenges that have yet to be discovered in a ubiquitous technological society. With the advent of new technologies, teacher preparation programs can be at the forefront of innovation and the research surrounding their work can create new, effective, and engaging learning spaces as well as define the role online learning will continue to play in 21st Century teacher education.

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