

Foreword

THE DREAM OF A TEACHER: THE CHRISTENSEN PERSPECTIVE

Excited to teach my first class, I spent the prior summer preparing games and activities because I wanted my students to enjoy learning. When school began, my enthusiasm to instill a love of learning in my students quickly turned to survival mode. I couldn't begin the career for which I thought I had been prepared because I was unable to manage the students – at least a few of them. Two disruptive students in a classroom of 33 can take 95% of a teacher's effort.

I have often looked back to what wrong in my preparation. I was successful in my education classes, in my observation class and in my student teaching preparation. Essentially it was often the unseen things that the supervising teacher put into place prior to me arriving that made such a difference. I missed watching those strategies being put into action.

The feeling that something in my preparation should have been different has been with me for two decades. I have been trying to find a way to support teachers in their early years that is affordable and sustainable. Many schools have spent countless hours and money on mentors to work with teachers. Some programs are successful but most are not affordable and sustainable. However when I first saw simSchool – one of the many rapidly improving applications described in this book – I saw hope in a system that would allow teachers to get help when they need it, especially in the early years of their teaching careers. Simulations copy some aspect of the real world. In this case the real world is learning and teaching.

THE DREAM OF A MATH MODELER: KNEZEK'S PERSPECTIVE

When I was an undergraduate and graduate student studying math modeling I dreamed of developing “mathematical models of brain functions.” Attention, motivation, learning, and retention were discussion topics among applied mathematicians and computer scientists even in the early 1970s. Unfortunately the best digital technology of the day was a teletype terminal connected to timesharing computer system!

During the 1970s we made a big leap from punch cards to interactive computing (perhaps similar to the leap to Web 2.0 today), but the biggest leap came with microcomputers in the early 1980s. Researchers in the early days had demonstrated that (even with timesharing technology) computer simulations could be just as effective as a ‘wet lab’ at teaching things like chemistry titration, and could do it up to nine times faster. Then programs like Lemonade Stand and Oregon Trail were constructed to capitalize on a game-like design and new features such as graphics, color and sound, made interacting with simulations fun. Learning with this kind of software was recognized as “intrinsically motivating” and the term “educational game” was born.

WHEN DREAMS COME TOGETHER

Now our teacher candidates are almost 100% members of the Oregon Trail Generation. They answer email on their iPhones and play computer games on their cell phones when they are bored. Their lives are enriched all around them by interactive, energizing, media. They are connected to each other like the Star Trek Borg. Certainly their students will be at least as techo-savvy as our current teachers-to-be. They have no fear of technology and see it as a major avenue to becoming absorbed. Are we puzzled at how these younger generations find it natural to learn in immersive, digital environments? We should not be surprised. Educators are seeking ways to engage students in learning through these new environments. The collection of engaging ideas in this book will help lead the way.

A BOOK FOR THE MILLENNIUM GENERATION

The impressive international collection of authors represented in *Digital Simulations for Improving Education* are ideally qualified to speak about and on behalf of the learning preferences of Millennials and generations beyond. Indeed, many share the personality characteristics of Millennials and speak from the authority of their hearts! Authors include early career researchers, who see the power and potential of games and simulations, as well as educational entrepreneurs and teacher educators. This unusual amalgamation is not unlike the early days of microcomputers, when things were growing so fast we all knew it was important and real, but no one was quite sure where it would all find a home and settle down. This book is a wonderful first step in the important process of defining a common language of dialog for games and simulations in education – in order to find common ground.

The chapters of this book span a refreshing range, from overviews and design frameworks to case studies and examples of actual digital simulations for education. Among the many new trails the authors blaze, this may be the very first simulations book to deal with developing teachers and building games and simulations for teacher development!

Can we ignore this major aspect of future teacher and learner lives when exploring ways to improve education? The psychologists of old would say we should not. The technologists anew would say we are foolish if we do. The scholar-authors in this book believe we need not sit idly by and merely wonder, but should design, build, study – and see.

Digital simulations for improving education — on your mark, get set, and go!

*Rhonda Christensen
Gerald Knezek
University of North Texas
September 2008*