Foreword

David Kaufman and Louise Sauvé have bridged theory and practice to create a uniquely informative, evidence-based, and abundantly practical volume on educational simulation and gaming environments. The book promises to become an essential reference for academics, designers, teachers, and students of games, simulations, and simulation games when fundamental educational aims and learning outcomes are uppermost in their minds.

The four sections of this volume draw upon the contributions and the expertise of academics, researchers, teachers, health professionals, technicians, and students to cover a vast territory related to simulations and gaming. The diversity of examples provided is extensive and will provide guidance for those involved in researching, creating, and using games or simulations in education.

The first section deals with foundations and theory, the second with game design and prototyping, the third section with learning efficacy, and the fourth with specific generic educational game shell and game creation. Taken together, the four sections provide an in-depth examination of theoretical models and original applications as well as a sound rationale and guidelines for the pursuit of educational aims through judicious use of games and simulations. The interest of this volume lies, in part, with the authors’ successful demonstration that their orientation is in tune with school curriculum goals and basic tenets of effective teaching and learning practices.

The section on foundations and theory begins with working definitions of games, simulations, and simulation games. It goes on to provide a rationale for the overall project and the writers’ efforts to better define the field itself. In discussing the notion of effectiveness of games and simulations, the authors make a compelling case for supporting learning through the effective use of sound, image, and animation as well as mechanisms and structures involving repetition, frequent feedback, challenge and competition, active learning, and teamwork. Also included in the section on foundations and theory are chapters devoted to simulation in the education of health professionals, the role of narrative, the potential of the concept of fantasy to enhance games, the issue of gender and games, the response of pre-service teachers to games, and the place of video games for the “net” generation. One of these chapters introduces the reader to new software environments and applications designed for patients and medical students and professionals navigating the health care system. Another offers a fascinating account of well-established, traditional narrative structures and describes to what extent they can be adapted to the interactive experience, while other chapters discuss notion of fantasy as well as the controversial issue of gender in games.

The second section of the book deals with design and prototyping. It includes a lead chapter linking theory and practice, showing how inter-related elements and structures of a game are mobilized to create a meaningful educational experience. Other chapters describe in turn the use of a simulator for teaching ethical decision-making, the harnessing of the popular socioconstructivist approach to education to develop healthy life habits through a game, the potential team work and communication benefits
of multi-player games, new tools for researchers studying the impact of gaming, the development of a character-based system in gaming, and, finally, a promising model of treating mental health patients through learning-oriented simulations.

The five chapters in the third section of this book deal with the critical issue of learning efficacy. The authors first explore variables measuring knowledge gains and the development of skills such as problem solving. A second chapter considers the application of multimedia games as a means for children with long-term health problems to take increased responsibility for managing their condition. A third considers the potential development of positive attitudes towards animals through games involving virtual pets. Parents and educators will be interested in both the overview, provided in subsequent chapters, of research on the impact of violent video games with respect to aggressive behaviors in children, and the results of a study of the application of biofeedback in a gaming environment. In summary, the third section of the volume raises key issues concerning the potential efficacy of games on the development of a range of skills, attitudes, and competencies among children and youth with a variety of social, health and cognitive needs.

The concluding section of the book serves as a model for those researchers and practitioners seeking to develop games for educational ends. Chapters in the final section report on the critical analysis of 40 computerized educational games and the design and development of a “generic educational game shell,” the integration of content and pedagogical objectives into the game environment, the adoption of “usability guidelines” to make the games come alive for users, the validation of generic educational game shells by teachers creating the games, and formative evaluation of an educational game on sexually transmitted diseases intended to inform and increase awareness among secondary students. This section is substantively different from the others, as it could stand alone as a basic text on the five stages of creating a generic educational game shell and developing online games using the shell.

David Kaufman and Louise Sauvé are to be commended for their considerable efforts to assemble and tie together a wide variety of perspectives on the educational use of simulation and gaming. This book succeeds in addressing basic research questions as well as offering many practical lessons derived from trials and validation exercises in a variety of clinical and educational settings. Educational Gameplay and Simulation Environments: Case Studies and Lessons Learned promises to become a staple reference for professionals in the health and education sectors across North America and beyond for years to come.

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