The field of 3D is growing and expanding. While the research contained within this book is the most current at the time of publication, further research will continue to break new ground. Each chapter has been written to provide information to the practitioner who wants information on how 3D technologies may be adapted for educational purposes as well as providing foundational investigations for the researcher.

Schroeder and Adesope, explore the literature surrounding the use of 3D in science education in their chapter, “Do 3D Pedagogical Agents Help Students Learn Science? A Systematic Review.” Their study provides insights into instructional approaches and offers suggestions for future research.

In their chapter, “3D Video Production in Education,” Wilson and Scott explored 3D stereoscopic production by pre-service teachers. The pitfalls and the successes in this creative endeavor are explained. Wilson and Scott encourage educators to attempt creating their own 3D videos for instructional purposes, although with the advent of less expensive cameras, students can be encouraged to learn content by filming their own 3D movies.

Barba, Brewer, and Swinford investigated and provided the historical underpinnings of stereoscopic use and content in their chapter “Stereoscopic 3D: Going Beyond Texas Tech University Libraries’ 3D Animation Lab.” They share their research on how to use stereoscopic content as well as providing data on how it has been received by those who are unfamiliar with the technology.

Using 3D virtual reality in their cyber ethics course, Matsuda, Nakayama, and Denki, chose to see if this platform could change instruction from a list of rules to one where students learned to apply cyber ethics. Their research found in their chapter, “Using 3D Virtual Reality Technology in Cyberethics Education: How Can We Really Evaluate and Change Students’ Attitudes?” can be applied in a variety of courses where the desired outcome is a change in student mindset.

Several researchers examined how 3D was enhancing the classroom learning experience for students. In “Taking Elementary Document Camera Use to the Next Dimension,” Nancye Blair introduces the world’s first stereoscopic 3D document
camera prototype, the 3D Ladibug. This camera uses a blend of anaglyphs and full-color stereoscopy, which can then be used with print media, video editing, and live-action presentations. Motivation and achievement results show improvement in science, mathematics, and literacy concepts.

Bodenlos and Lennex in “3D Science and Social Studies in Grades 5-6: Virtualization Expanding Instruction” present the use of 3D apps with iPads in the real classroom. Both the literature review and the classroom research have shown that students retained content knowledge and possibly improved overall achievement.

In their chapter, “Students’ Perceptions of a 3D Virtual Environment Designed for Metacognitive and Self-Regulated Learning in Science,” Clarke-Midura and Garduño used virtual environments to create unique learning experiences in science. The paring of science and technology yielded an interesting understanding of how students comprehend their learning experiences.

Spencer, Lennex, and Bodenlos expand the use of 3D in the classroom in their chapter, “3D Technology in P12 Education: Cameras, Editing, and Apps.” This chapter provides needed information about 3D equipment, ease of use in the classroom, and Internet programs such as Google SketchUp.

Eguchi and Shen detail the use of CoSpace educational robotics in their chapter, “Student Learning Experience through CoSpace Educational Robotics: 3D Simulation Educational Robotics Tool.” CoSpace educational robotics is an educational digital media that enables users to explore both virtual and actual objects.

In a class specifically designed for student-technology interaction, Combs and Mazur researched how and why students chose to collaborate with each other, their instructor, and 3D technology in their chapter, “3D Modeling in a High School Computer Visualization Class: Enacting a Productive, Distributed Social Learning Environment.” Their findings have broad application in the area of human-technology interaction.

Marrero, Schuster, and Bickerstaff worked with middle school students in a NASA-sponsored project. They discuss their findings on 3D technology use and improved student engagement and learning in their chapter, “Earth System Science in Three Dimensions: Perspectives of Students and Teachers on NASA’s Project 3D-VIEW.”

Focusing not on tools but on human-environmental interactions, the use of Second Life as an instructional tool was scrutinized by several researchers. In their chapter, “Using Second Life to Teach Collaboration Skills to Preservice and Inservice Special Educators,” Hartley, Ludlow, and Duff describes the rationale in developing virtual learning experiences. Development, implementation, and evaluation, as well as suggestions for using virtual activities in other teacher education programs are offered.

Lavin and Bai used 3D case studies to provide richly simulated environments for students in nursing education to practice emerging skills. Their chapter, “Developing
3D Case Studies for Authentic Learning Experiences,” offers suggestions on how to create opportunities for students to analyze and apply their skills in an affordable technologically-based environment.

D’Alba and Jones present “Analyzing the Effects of a 3D Online Virtual Museum in Visitors’ Discourse, Attitudes, Preferences, and Knowledge Acquisition.” This chapter examines the effectiveness of an online three-dimensional learning environment and its effects in visitors’ discourse, attitudes, preferences, and knowledge acquisition, during and after a real museum visit. Results demonstrate that using a three-dimensional pre-visualization can enhance and influence the learning experience in educational settings.

Lu painted a different picture of Second Life in her chapter on “3D Virtual Worlds as Creative Pedagogy for Art Education: Art Café@Second Life.” The intersection of art curriculum and 3D virtual worlds provides a basis for both a new art medium and exhibition outlet.

The findings within these chapters will provide both instructors and researchers with a solid foundation of information on 3D technology. The research in this book has been directed to a variety of applications and audiences on the use of 3D in educational contexts, but the broad spectrum should generate excitement for future possibilities of adaptation and evolution of this technology.