About the Contributors

**Donna Russell** is adjunct faculty at Walden University’s College of Education’s Teaching, Learning and Innovation program. She is adjunct faculty at Capella University’s School of Social and Behavioral Sciences’ Educational Psychology program. She has published extensively on the design and implementation of virtual learning environments. She has a bachelors and master’s degree in Education specializing in Instructional Design. Her PhD is in Educational Psychology with an emphasis on cognition and technology. She has 15 years’ experience teaching in P-12 educational settings.

**James Laffey** is a Professor in the School of Information Science and Learning Technologies and a former researcher and systems developer at Apple Computer, Inc. Dr. Laffey has a Ph.D. in Education from the University of Chicago and has won awards for the design of innovative, media-based computer systems. Through his design work and scholarship he is internationally recognized as an expert in the area of human-computer interaction. He currently teaches graduate level courses on development of systems to optimize HCI and learning, including approaches to game-based virtual learning. He has received over $8 million of funding during the past 15 years.

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**Deanne M. Adams** currently works at Microsoft Studios as a User Researcher. Previously she held Postdoctoral Scholar positions at the University of Notre Dame and Vanderbilt University. Her research interests include the cognitive consequences of playing commercial video games, training spatial skills, navigation in virtual environments, multimedia learning, and cognitive tutors. Dr. Adams’s more recent work has focused on value-added research with educational games such as incorporating worked examples. Dr. Adams received her Ph.D. from the University of California, Santa Barbara from the department of Psychological and Brain Sciences while working with Dr. Richard E. Mayer.

**Douglas A. Agar** is a research student in the Department of Linguistics at Macquarie University, Australia. His research interests are in the areas of appropriate and innovative uses of technology in language education, sociocultural models of language development, and multiple literacies. He has spent the last decade variously teaching Irish Gaelic and French in Irish and Australian high schools.
About the Contributors

Jodi Asbell-Clarke is the director of the Educational Gaming Environments Group (EdGE) at TERC. TERC is a non-profit research and development organization focusing on innovative, technology-based math and science education. EdGE is a team of game designers, educators, and researchers who are studying implicit STEM learning in digital games. Jodi’s background includes MA in Math, an MSc in Astrophysics and a PhD in Education. She was an onboard software verification analyst for IBM during the first 25 missions of the space shuttle and taught at the laboratory school at University of Illinois. In 2009, she co-founded EdGE at TERC.

Ryan Nicholas Babiuch is a game engineer at the University of Missouri within the School of Information Science and Learning Technologies leading and contributing to projects in research and development.

Erin Bardar is the Education Materials Director for the Educational Gaming Environments group (EdGE) at TERC. She works closely with game designers and teachers, focusing primarily on to how to bridge free-choice games and formal classroom science instruction. Erin has a background in physics and astronomy. She was a NASA Graduate Student Research Program (GSRP) fellow at Boston University where she earned a PhD in Astronomy for her research on introductory college students’ understanding of light and spectroscopy. Erin is also the creator of the Light and Spectroscopy Concept Inventory, and has a U.S. patent for a binocular spectrometer.

Caitlyn A. Bukaty is a doctoral scholar and Presidential Fellow at the University of Central Florida. Prior to pursuing her PhD Caitlyn was a special educator in Western New York, teaching students of all ages and abilities. Caitlyn’s research interests include creating innovative post-secondary opportunities for young adults with intellectual disabilities.

Leonard Busuttil is a resident academic at the Faculty of Education, University of Malta. His research interests are in game based learning and in introducing children to computational concepts. He has presented in conferences on digital game making by children and creativity.

Vanessa Camilleri is a resident academic at the Faculty of Education, University of Malta. Her research interests are mainly in technology-enhanced learning, more specifically involving Virtual Worlds technologies and their design for a more effective impact in the area of human-computer interaction. She has additionally delivered a series of talks and presentations at International Conferences relating to Mobile Learning applications and Serious Games, as well as Virtual Worlds and Digital Social Spaces.

Chris Campbell is a lecturer in ICT Education in the School of Education at The University of Queensland. Her teaching areas include teaching undergraduate students how to use technology in the classroom, including mobile learning tools. She has been involved in using the TPACK framework with Apps in mathematics education and her other research interests include integrating ICT as a learning tool into the classroom and other areas of research include topics such as learning design, virtual worlds research and augmented reality games research. Chris has also completed research on self-regulation and ICT in the classroom while her newer research includes learner response systems as well as self regulation when completing MOOCs and how teachers can use this to enhance their teaching.
**Manetta Calinger** has been a curriculum writer/designer for numerous educational curriculum packages and live role-playing simulations funded by diverse organizations including NASA, National Institutes of Health (NIH), National Institute of Occupational Safety and Health (NIOSH), National Oceanic and Atmospheric Administration (NOAA), the Mining and Safety and Health Administration (MSHA), the U. S. Army Corps of Engineers, and various foundations. She is a West Virginia certified general science and biology teacher with 25 years of classroom experience and administrative experience as a K-12 science department chair and curriculum committee member. She has developed and facilitated teacher professional development programs, delivering PD to educators teaching varying grade levels and subject matter specialties. During her tenure as a curriculum writer/instructional designer, Calinger has developed multiple live simulations, training modules, and functional exercises and has worked collaboratively with evaluators on the assessment/research components of these projects.

**Philip J. Chappell** is a Lecturer in the Linguistics Department at Macquarie University, Australia, where he convenes the Graduate Certificate of TESOL. His research interests are in classroom talk, sociocultural approaches to teacher cognition, dialogic pedagogy, and professional learning for English language teachers. Phil supervises higher degree research students at doctoral and masters level.

**Douglas B. Clark**, Professor of the Learning Sciences and Science Education at Vanderbilt, investigates the learning processes through which people come to understand core science concepts in the context of digital learning environments and games. This work focuses primarily on conceptual change, inquiry, modeling, explanation, collaboration, and argumentation. He is principal investigator on NSF and DOE grants on games.

**Jody Clarke-Midura**’s research focuses on the design and evaluation of digital media for learning and assessment. She is interested in innovative approaches to assess and model learning. Prior to MIT, she was a researcher at the Harvard Graduate School of Education. She holds a master’s degree and doctorate from the Harvard Graduate School of Education.

**Erdem Demiroz** is a PhD candidate at the University of Missouri-Kansas City (UMKC), in the School of Graduate Studies. His interdisciplinary PhD studies focus on Curriculum and Instructional Leadership and Mathematics and Statistics with emphasis on Information and Learning Technologies (ILTs) in Mathematics Education. He earned his MA in General Curriculum and Instruction and Learning Technologies at UMKC, and Bachelor of Arts in Computer Education and Instructional Technologies (CEIT) from Ege University in Turkey. His extensive background and experience in information and learning technologies underlie his teaching and research interests. He has taught graduate and undergraduate level courses which focus on teaching and learning with technology, educational assessment, and problem solving and creativity. His general research interests focus on the best practices of ILTs in K-12 education, the effects of technology on learning processes and on student learning outcomes with specific emphasis on course redesign & flipped learning with heavy use of ILTs, virtual learning environments, online teaching practices and design, learning theories in virtual learning, artificial intelligence, gaming and educational game design for P-12 education, human computer interaction, and kinesthetic learning in virtual settings.
About the Contributors

Martin Ebner is currently head of the Department for Social Learning at Graz University of Technology and therefore responsible for all university wide e-learning activities. He holds the position of an Assoc. Prof. on media informatics and works also at the Institute for Information System Computer Media as a senior researcher. His research focuses strongly on e-learning, mobile learning, learning analytics, social media and Open Educational Resources. Martin gives a number of lectures in this area as well as workshops and keynotes at international conferences.

Scott Fredrickson is Professor and Graduate Program Chair of Instructional Technology at the University of Nebraska Kearney. He received his doctorate from Texas Tech University. He has been at the University of Nebraska Kearney for 23 years and prior to that he was at the University of Alaska Southeast in Sitka for four years. He was a computer science and government/social studies teacher at Lubbock (Texas) Independent School District for nine years. He has earned the Master Online Teacher certificate from the University of Illinois and the Certificated Online Administrator certification from the Online Learning Consortium. He has a Texas teaching endorsements in Computer Information Systems, Information Processing technology, Computer Literacy, Government, Political Science, and Broadfield Social Studies He has authored 38 peer-reviewed journal articles, six book chapters, 11 monographs, co-authored 17 peer-reviewed journal articles, and has presented at 42 national or international conferences.

Benjamin Gallegos is a doctoral student in the Exceptional Education Program at the University of Central Florida. He is a research associate on the Bill and Melinda Gates Foundation funded, UCF TeachLivETM classroom. Ben began teaching in the southwest of the United States as a Preschool Programs for Children with Disabilities (PPCD) teacher and later in a fourth grade inclusive classroom. Ben’s research interests are in using innovative, and promised based technologies for teacher practices and students learning achievements. Ben’s research focus is on increasing STEM education outcomes, Universal Design for Learning Framework, and feedback features in the virtual learning environments for student with disabilities.

Martonia Gaskill is an Assistant Professor at the University of Nebraska at Kearney. She currently teaches graduate and undergraduate courses in the areas of instructional technology, research methods and general education. Her research interest includes online learning, technology integration, pre-service teacher education, digital cheating, MOOC learning environments and gaming in education.

Roland Geraerts is an assistant professor at the Games and Virtual Worlds group in the Department of Information and Computing Sciences at Utrecht University in the Netherlands. There, he obtained his PhD on sampling-based motion planning techniques. In addition, he studied quality aspects of paths and roadmaps. His current research focuses on path planning and crowd simulation in games and virtual environments. Furthermore, he teaches several courses related to games and crowd simulation. Roland has organized the Creative Game Challenge and is one of the co-founders of the annual Motion in Games conference.

Sean Goggins is an Associate Professor at Missouri’s iSchool and the University of Missouri Informatics Institute. He teaches, publishes and conducts research on the uptake and use of information and communication technologies by small groups in medium to large scale sociotechnical systems; from Facebook, to online course systems and video games. Sean conceptualizes “group informatics” as a
methodological approach and ontology (Goggins et al, 2013) for making sense of the interactions between people in medium to large scale social computing environments. His research examines the information behavior, knowledge construction, identity development, performance and structural evolution of small, online groups. The long tail of social computing bounds this work; large scale communities are approached from the bottom up in group informatics research. By understanding small groups of online learners, librarians or software engineers (to name just a few), and analyzing traces of their interactions, Group Informatics brings semantics to the clusters discovered in large scale social computing endeavors.

**Susannah Gordon-Messer** is a content manager for The Education Arcade. She is a content expert for high school math and science and works on developing game content as well as teacher materials that accompany games. She manages school and teacher partnerships, prototype testing with students, school implementations and leads professional development workshops. Prior to MIT, she was a postdoc with the Strategic Education Research Partnership (SERP) and developed curriculum for science literacy at the middle school level. Susannah worked for the Posse Foundation as the mentor for the inaugural group of Science Posse students and has volunteered designing programs at The Discover Museums in Acton, MA. She holds a PhD in Biophysics from Brandeis University and was a high school math teacher with Teach for America in Warrenton, NC.

**Dimitris Gouscos** is an Assistant Professor with the Faculty of Communication and Media Studies of the University of Athens, and a Research Fellow of the Laboratory of New Technologies in Communication, Education and the Mass Media. He is Editor-in-Chief of the Intl Journal of Electronic Governance and his research interests evolve around applications of social media, digital games and other interactive digital media to e-learning, e-participation and e-governance. More information available at http://www.media.uoa.gr/~gouscos.

**Joseph Griffin** is a doctoral student at Mizzou’s School of Information Science and Learning Technology. He is interested in intelligent algorithms and serious games as methods of research into learning.

**Christina Grupetta** is a 21- year old student at the University of Malta currently working on a B.Ed primary course. It is her last year at the University and she is expected to graduate in the upcoming December. She has a passion for teaching and trying out new teaching methods, leading to her interest in game-based learning. Her research study consisted of incorporating the use of the game Minecraft, in the classroom.

**Stella K. Hadjistassou** is a research fellow at the KIOS Research Center for Intelligent Systems and Networks. She has completed her Ph.D. in Rhetoric/Composition and Linguistics at Arizona State University, where she also taught multiple courses in ESL, sociolinguistics, English grammar, English composition, and technical and professional communication. Stella also participated in multiple research studies in the U.S. and Europe. She has also participated in multiple European funded projects and nationally funded projects in virtual worlds, second/foreign language teacher training, Web 2.0 technologies and gaming. She has also published extensively in this area.
About the Contributors

**Valerie J. Hill** has served as a school librarian and instructor of library and information science for over twenty years. She earned her doctorate at Texas Woman’s University in 2012 and her dissertation was “Factors Contributing to the Adoption of Virtual Worlds by Librarians”. She is a National Writing Project trainer with interests that include children’s and young adult literature, storytelling, multi-media, human-computer interaction, and emerging technology tools such as virtual and augmented reality for learning environments. Dr. Hill’s research focus is centered on information literacy and the changing needs of learners in global participatory digital culture.

**Patricia Hoehner** is an Associate Professor in Educational Administration at the University of Nebraska, Kearney. Her research interests include online learning, leadership, and curriculum.

**Norman Jaklin** obtained a Diploma (BSc + MSc) in computer science in March 2011 from the Rheinische Friedrich-Wilhelms-Universität Bonn, Germany, with a strong focus on computational geometry. Since December 2011, he has been a PhD candidate in the Virtual Worlds division of the Department of Information and Computing Sciences, Utrecht University, the Netherlands. His research focuses on path planning and crowd simulation models for autonomous virtual agents. Such models are used in video games, CGI-enhanced movies, safety training simulations, and urban city planning.

**Lenora Jean (Jeannie) Justice** graduated with an Ed.D. in curriculum and instruction from the University of Florida. She has taught at the high school, GED/adult high school, undergraduate, and graduate levels for over 15 years. She currently teaches educational technology courses and advises both masters and doctoral students at Morehead State University in Morehead, Kentucky.

**Michelle T. Kepple** is a doctoral candidate at the University of Central Florida. Her research foci is in instructional strategies, game-based learning, and distance education. Prior to her doctoral studies, Ms. Kepple was a faculty instructor at Central Connecticut State University in the Educational Leadership department where she worked with preservice teachers on instructional technology and implementation.

**Sotiris Kirginas** is a primary school teacher and doctoral researcher at the Laboratory of New Technologies in Communication, Education and the Mass Media of the Faculty of Communication & Media Studies, National University of Athens. He holds a Bachelor Degree in primary education and a Master Degree in ICT in Education from the National University of Athens. His research focuses on exploring the significance of digital games-based learning in education and how does it relate to enhancing the learning process.

**Eric Klopfer**’s research focuses on the development and use of computer games and simulations for building understanding of science, technology, engineering and mathematics. He works on mobile and online games designed to build understanding of scientific practices and concepts as well as critical knowledge. In the realm of simulations, Klopfer’s work focuses on students understanding complex systems through, and connecting computer programming with, scientific practice, critical thinking, and real-world issues. He is the co-author of the books, “Adventures in Modeling”, “The More We Know”, as well as author of “Augmented Learning.” Klopfer is also the co-founder, past President, and Board Member of the non-profit Learning Games Network.
Mario M. Martinez-Garza is a doctoral candidate of learning sciences and learning environment design at Vanderbilt University. His main areas of interest are investigating the potential of play as a vehicle for learning through cognitive perspectives, and applications of theory-based design principles to support learning through game environments of all kinds. He holds a Master’s degree in Education and has served as a middle-school math and science teacher, and as a game designer for several commercial and educational games companies.

Judith Molka-Danielsen is a professor in Information Systems and Information Sciences at Molde University College where she is leader of the virtual learning and technology research group.

Patrick O’Shea is currently an assistant professor in instructional technology at Appalachian State University and an educational consultant working on Augmented Reality and Distributed Learning educational initiatives (e.g. student-authored textbooks written collaboratively with wiki technology). Before that he held a post-doctoral fellowship in learning technologies at Harvard’s Graduate School of Education, where he directed the Handheld Augmented Reality Project. This project aimed to evaluate the educational applications of augmented reality technologies. O’Shea has professional experience working with educational technology, assessment, and program evaluation. He has taught online and in face-to-face settings and consulted nationally and internationally on educational projects, including working for the Bill & Melinda Gates Foundation in Africa and as a Fulbright Specialist in Sri Lanka.

Debra C. Burkey Piecka, Ed.D., is an evaluator and educational researcher with the Sponsored Research Programs department at Wheeling Jesuit University. She is the internal evaluator and educational researcher for the NIH grant, Pandem-Sim: Fighting Infectious Diseases Everywhere, where she performed a similar role for the NIH CyberSurgeons project. Piecka provided evaluation services for multiple projects including Micronauts (NASA Education), eLabs Virtual Science Labs (The Benedum Foundation), Mining and Industrial Safety Technology and Training (NIOSH), and the Bluestone Dam project (U.S. Army Corps of Engineers). She is also a contributing faculty member at Walden University’s Educational Technology Ph.D. program. Piecka received her doctoral degree from Duquesne University in instructional technology along with graduate certificates in Interpretive and Qualitative Research Methods and Instructional Technology. She earned an M.B.A. from the University of Pittsburgh and a triple B.S.in Administration and Management Science, Economics, and Mathematics from Carnegie Mellon University.

DeAnna Proctor is currently a doctoral student in the Education Technology Leadership program at Morehead State University.

Su-Jen Roberts is a behavioral ecologist who joined NewKnowledge in 2014 as a researcher and analyst. She completed her PhD in the Ecology, Evolution, and Environmental Biology Department at Columbia University, where she studied primate behavior and reproduction. Additionally, Dr. Roberts has worked in museum research and evaluation at the Franklin Institute in Philadelphia and as a middle school teaching fellow in New York City. Her other research interests include wildlife, conservation biology, and STEM education.
Louisa Rosenheck manages the design, content, and development of educational games and simulations to be used with middle and high school students. She also oversees the research done on these projects exploring how games can be used most effectively in both formal and informal educational settings. Prior to becoming a researcher at MIT, Louisa worked in public media and Web site production, and also taught ESL to children and adults of all ages. She holds a B.A. in Computer Science from Brown University and an Ed.M. in Technology, Innovation, and Education from the Harvard Graduate School of Education.

Elizabeth Rowe, a senior researcher at TERC, studies and develops innovative uses of technology in and out of schools with a focus on game-based learning. Dr. Rowe is currently the Director of Research for the Educational Gaming Environments group at TERC where she oversees the research design, data collection, and data analysis for several NSF-funded EdGE projects including Leveling Up, Taking Games to School, SportsLab 2020, Revealing the Invisible, and the Finnish-US Network. Elizabeth’s background includes a Bachelor’s degree in Mathematics and a Ph.D. in Human Development and Family Studies.

Troy D. Sadler is a Professor of Science Education and serves as Director of the ReSTEM Institute: Reimagining & Researching STEM Education at the University of Missouri. He conducts research on the teaching and learning of science in the context of innovative learning environments and socio-scientific issues.

Pratim Sengupta, Assistant Professor of the Learning Sciences at the University of Calgary, designs and develops agent-based computational technologies for long-term, ecologically valid classroom integration, empirically grounded models of short-term conceptual change and long-term development of learners, and multi-agent models of complex social and natural phenomena. He is the recipient of an NSF CAREER award for his research on developing programming languages for K12 learners.

Christina Shane-Simpson is a researcher and analyst with New Knowledge, with a particular focus on dynamic interactions that occur among humans in digital environments. Mrs. Shane-Simpson studies college students’ choices on social networking sites as they relate to self-esteem and general Internet use. She has also created technology-based interventions to assist students with autism and other disabilities to effectively navigate social networking sites. Mrs. Shane-Simpson has completed a Certificate in Interactive Technology and Pedagogy from The Graduate Center, while she currently teaches undergraduate psychology coursework at Hunter College.

Jouni Smed holds a PhD in Computer Science and acts as Senior Lecturer and Adjunct Professor in the University of Turku, Finland. He has organized and taught game development on diverse topics ranging from game algorithms and networking in multiplayer games to game software construction, game design and interactive storytelling. He is also the co-founder of Turku Game Lab, which aims at bringing together technologically- and artistically-oriented students to work on the same game projects and start their career in the game industry. His research interests range from code tweaking to software processes and from simple puzzles to multisite game development.
Peter A. Smith is currently an assistant Professor in the School of Visual Art and Design at the University of Central Florida, with over 10 years of experience working in the field of Serious Games and simulation. In this time he has worked on diverse catalog of gaming projects for the Navy, NSF, ADL, DAU, and many more. Peter received his Ph.D. in Modelling & Simulation from the University of Central Florida in 2012. He has presented internationally on the topic of Serious Games including the 2007 Serious Games Summit opening presentation on the Taxonomy of Serious Games. He is also a founder and previous chair of the Serious Games Showcase & Challenge a competition the highlights the best work in Serious Games held as an integral part of the IITSEC Conference for the last 9 years.

Anne Elizabeth Snyder is Director of Research and Learning Design at Second Avenue Learning. With a strong background in teaching and educational research, Anne is responsible for managing all instructional design and research efforts at Second Avenue Learning. Drawing from her experience in brick-and-mortar as well as online instruction, Anne applies best design and research practices to all proprietary and client products. Dr. Snyder holds a Ph.D. in Educational Psychology from Teachers College, Columbia University.

Norbert Spot is currently master student of computer science at Graz University of Technology. His master thesis is strongly focusing on Game Based Learning.

Tomi Suovuo is a graduate student at University of Turku Department of Information Technology, specialising in Games and Interaction.

Grant Van Eaton is a doctoral student in the learning sciences and science education at Vanderbilt University’s Peabody College of Education. He previously taught high school biology in Washington, DC as a Teach For America corps member. Van Eaton remains active in new teacher training and development. His research explores teachers’ and students’ conceptual change as they interact with and incorporate technology in science classrooms.

Victoria Van Voorhis is founder and CEO of Second Avenue Learning.

Satyugjit Virk, postdoctoral scholar at Vanderbilt, completed his doctoral work with Dr. John Black at Teachers College, Columbia University. He was also previously director of product development and cognition at the autism gaming company Interactable, and has a diverse portfolio of industrial elearning and educational software experience. Sat focuses on cognitive science approaches to multi-representational systems with an emphasis on integrating causally related symbolic and semantic representations in STEM through interactive visualizations.

Sam von Gillern works at Iowa State University and is interested how educators can use games to promote learning outcomes in their classrooms. Additionally, he researches literacy and language development and cross-linguistic transfer. He teaches a variety of courses at Iowa State University and also works with young children promoting literacy development.
About the Contributors

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Steven E. Wallis is a Fulbright Specialist focused on developing more effective strategy, policy, and theory for academic and research institutions. He is the director of meta-analysis at the ASK MATT division of Meaningful Evidence, LLC which uses a gamified approach to strategic planning and knowledge mapping. At Capella University, he mentors doctoral candidates in Industrial/Organizational Psychology.

Shelly Welch is a MFA student in Digital Media at the University of Central Florida. She is working with games, toys, and simulations in the areas of health, military, and education. She works at I.D.E.A.S. and will graduate in 2015.

Jane K. Ziebarth-Bovill is an associate professor in the department of teacher education at the University of Nebraska at Kearney (UNK). She received her B.A.E. degree in Social Science from Kearney State College, an M.A.E. degree in Comprehensive Social Science at Kearney State College, and a Ph.D. in Curriculum, Instruction, and Administration from the University of Nebraska at Lincoln. Dr. Ziebarth-Bovill teaches both undergraduate and graduate courses and supervises student teachers at UNK. Her research and teaching interests include field-based education, service-learning, classroom engagement strategies, academic advising, and Invitational Education.