

SELEN TURKAY

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Work Contact

Dept. of Computing Communication and
Technology in Education
Teachers College, Columbia University
525 West 120th Street, Box
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EDUCATION

Doctor of Education in Instructional Technology and Media, 2013
Teachers College, Columbia University, New York, NY
Dissertation Title: *The Long Term Effects of Customization on User Experiences in an Online Social Game: A Mixed Method Study*
Advisor: Dr. Charles Kinzer

Master of Arts in Instructional Technology and Media
Teachers College, Columbia University, New York, NY
Thesis Title: *Using Digital Mathematics Games as Alternative Homework for Third Grade Students*
Advisor: Dr. Susan Lowes

Master of Science in Mathematics, specializing in Geometry
Uludag University, Bursa, Turkey
Thesis Title: *Biharmonic Curves and Surfaces*
Advisor: Dr. Kadri Aslan

Bachelor of Science in Mathematics
Uludag University, Bursa, Turkey

Research Interests: Design of technology enhanced learning environments, user experiences, game based learning, affordances of virtual worlds for team building and collaborative learning, personalization and customization in/of digital learning environments, agents, avatars and robots for sociability and learning, avatar-self relationships, interest driven communities.

Teaching Interests: Role of emerging technologies in engagement and learning, affordances of virtual worlds for collaborative learning, psychology of engagement and motivation, game design, social communication aspects of internet, research methods.

RESEARCH EXPERIENCE

Graduate/Research Assistantships (Supervisor: Dr. Charles Kinzer)
Teachers College, Columbia University, New York, NY

Games for Learning Institute at Teachers College (project funded by Microsoft Research),
09/2009 – present

- Helped design and implement research studies in the area of games and learning
- Co-created instruments to conduct data collection
- Collected data in New York City public schools with middle school students
- Analyzed qualitative and quantitative data
- Co-wrote papers and presented at academic conferences

Integrated Curriculum Project (ICP) (project funded by USDOE/OSEP), September 2007 – June 2009

- Developed an online multimedia case for teachers to use Anchored Instruction in the classroom
- Co-designed the project's website

CTELL (Case Technologies to Enhance Literacy Learning) Project (project funded by NSF) Primary Investigators: Dr. Charles Kinzer; Dr. Linda Labbo; Dr. Don Leu; Dr. William Teale (NSF-0089221), September 2005 – May 2006

- Conducted qualitative and quantitative data analysis
- Suggested ideas to the project team on analyzing the data

Graduate/Research Assistantship (Supervisor: Dr. Sandra Okita)

Teachers College, Columbia University, New York, NY

Human Robot Interaction and Learning Lab (HRIL) September 2011 - present

Social Technology and Learning Lab (STL Lab) September 2009-present

- Helped with data collection for STL Lab projects at New York City public schools
- Created and organized virtual world content for research projects
- Developed content in the virtual world Second Life for the *Learning with Agents and Avatars* project
- Conducted research in virtual environments
- Helped maintain research labs
- Collected data by using eye tracking apparatus and skin conductance sensors
- Helped conduct Wizard-of-Oz studies by operating the humanoid robot Nao for the *Learning with Humanoid Robots* project (industrial collaborative grant, Honda Research Institute)

Project Evaluator (Supervisor: Barry Joseph)

Global Kids Inc., New York, NY

RezEd Conference at Games Learning Society Conference, June 2009 – July 2009

Dream It Do It Initiative, January 2009 – June 2009

Playing for Keeps Capacity Building Program, February 2009 – August 2009

Science Through Second Life project, January 2008 – August 2008

- Determined evaluation methods for project evaluation
- Conducted the project evaluation by using online surveys, participant observation and interviews
- Wrote evaluation reports
- Presented results at professional meetings

Intern as an Afterschool Lego Mindstorms Instructor

Public Middle School, New York, September 2007- December 2007

- Worked with Dr. Elizabeth Sklar to implement the semester long curriculum
- Taught middle school students basic programming with Lego Mindstorms

Intern as a Staff Developer

Reach the World Organization, New York, September 2005- December 2005

- Helped teachers to implement technology into their public elementary school curriculum

TEACHING EXPERIENCE

Instructor

Teachers College, Columbia University, New York, NY

Department of Communication, Computing and Technology

Course: *MSTU 5510, Possibilities of Virtual Worlds* (January – May 2010)

Adjunct Lecturer

Fordham University, New York, NY,

Mathematics Department

Course: *MATH 1100, Finite Mathematics* (Fall Semester, 2008)

York College, City University of New York, Queens, NY

Department of Academic Computing and Educational Technology

Course: *AC230, Teaching with Multimedia [Hybrid]* (Winter 2011, Summer 2013)

Teaching Assistant

Teachers College, Columbia University, New York, NY

Department of Communication, Computing and Technology

Course: *MSTU 6600: Doctoral Colloquium* (September 2012 – present)

Course: *MSTU 5510: Possibilities of Virtual Worlds* (Spring Semesters in 2008, 2009, 2012)

Course: *MSTU 4039: Video Games in Education* (Spring Semester, 2007)

Course: *MSTU 4052: Computers, Problem Solving and Cooperative Learning [Online]*
(Spring Semester, 2006)

Columbia University, New York, NY

Department of Computer Science

Course: *COMS W4995: Video Game Design & Production* (Spring Semester, 2007)

Uludag University, Bursa, Turkey

Department of Mathematics

Course: *Analytic Geometry, Calculus I, Calculus II* (January 2003 – June 2004)

OTHER PROFESSIONAL EXPERIENCE:

Virtual World Content Developer (June 2010 – July 2010)

York College, City University of New York, Queens, NY

Project title: *Enhancing Education in the Health Professions through 3D Simulations*

- Developed content for health simulations in the 3D virtual world, Second Life (SL)
- Provided consultancy to project investigators about conducting research in SL

Virtual World Content Developer (September 2008 – May 2010)

Teachers College, Columbia University, New York, NY

Academic Computing Services

- Designed and developed educational tools in the 3D virtual world, Second Life (SL)
- Modeled and built the Teachers College campus in the virtual island, TC Educator, in SL
- Helped educators to implement their classes in Second Life
- Provided consultancy to graduate students for their academic work related to virtual worlds
- Conducted workshops to introduce the virtual Teachers College island to students and faculty

Computer Lab Consultant (September 2006 – present)

Teachers College, Columbia University, New York, NY

Academic Computing Services

- Assisted students with computer problems (software and hardware)
- Managed the equipment in the computer labs

Consultant (October 2010)

Embrain Research, Korea

- Provided insight for the design and implementation of Telepresence robots via phone interviews

HONORS AND AWARDS

- Research Fellowship for Doctoral Students, Teachers College, Columbia University, 2011.
- 2nd place in a national educational game design competition, Hidden Agenda, 2008.
- Awarded the best student empirical research presentation at the Games Learning Society Conference, 2008.
- Minority Tuition Credit Scholarship, Teachers College, Columbia University, 2007-2008.
- Turkish Ministry of Education Scholarship for Graduate School Education Abroad, 2004-2011.
- Scholarship from the Scientific and Technological Research Council of Turkey (provided to only 20 students, nationally), 2002-2004.
- Honor Student for 8 semesters, 1998-2002.

- Top student of the Arts and Science Faculty (which consisted of 9 departments), Uludag University, Bursa, Turkey.

PUBLICATIONS

Refereed Articles and Chapters:

- Turkay, S.**, Hoffman, D.L., Kinzer, C.K., Chantes, P., & Vicari, C. (in press). Toward understanding the potential of games for learning: Learning theory, game design characteristics, and situating videogames in classrooms. *Computers in the Schools*.
- Okita, S.Y., **Turkay, S.**, Kim, M. & Murai, Y. (2013). When observation beats doing: Learning by teaching with virtual peers and the effects of technological design choices on learning. *Computers and Education*. *Computers and Education*.63, 176-196.
- Kinzer, C.K., **Turkay, S.**, Hoffman, D., Gunbas, N., Chantes, P., Chaiwinij , B., & Dvorkin, T. (2012). Examining the effects of text and images on story comprehension: An eye tracking study of reading in games and comics. *Literacy Research Association Yearbook 61*. (pp. 259-275). Chicago, IL: Literacy Research Assoc.
- Kinzer, C. K., Hoffman, D.L., **Turkay, S.**, Gunbas, N., & Chantes, P. (2011). Exploring motivation and comprehension of a narrative in a video game, book, and comic book format. In R.T. Jimenez, V. J. Risko, M.K. Hunley, & D. W. Rowe (Eds.). *Literacy Research Association Yearbook 60* (pp. 263-278). Chicago, IL: Literacy Research Assoc.
- Arslan, K, Murathan, C, Ozturk, G., & **Turkay, S.** (2011). H-Recurrent surfaces in Euclidean space E^m . *Selçuk Journal of Applied Mathematics*. 12 (2), 35-41.

Refereed Conference Proceeding Publications

- Turkay, S.**, Hoffman, D., Gunbas, N., Chantes, P., Adinolf, S., & Kinzer, C. (2012). Exploring a new approach to visual asset design. In K. Squire, C. Martin, & A. Ochsner (Eds.), *Proceedings of the Games, Learning, and Society Conference: Vol. 2*. Pittsburgh PA: ETC Press.
- Adinolf, S., **Turkay, S.**, & Tirthali, D. (2012). In torpor, not dead: A look at a collectible card game that sticks around. In K. Squire, C. Martin, & A. Ochsner (Eds.), *Proceedings of the Games, Learning, and Society Conference: Vol. 2*. Pittsburgh PA: ETC Press.
- Kinzer, C., Hoffman, D., **Turkay, S.**, Chantes, P., Gunbas, N., Dvorkin, T., & Chaiwinij, A. (2012). The impact of choice and feedback on learning, motivation, and performance in an educational video game. In K. Squire, C. Martin, & A. Ochsner (Eds.), *Proceedings of the Games, Learning, and Society Conference: Vol. 2*. Pittsburgh PA: ETC Press.
- Turkay, S.** (2012). User experiences with avatar customization in Second Life and Lord of the Rings Online. In *Proceedings of 4th Annual Teachers College Educational Technology Conference*, New York, NY.
- Turkay, S.**, Adinolf, S. & Tirthali, D. (2012). *Collectible card games as learning tools*. *Procedia - Social and Behavioral Sciences*, 46, 3701–3705.
- Turkay, S.** & Adinolf, S. (2012). What do players (think they) learn in games? *Procedia - Social and Behavioral Sciences*, 46, 3345–3349.

- Adinolf, S. & **Turkay, S.** (2011). Collection, creation and community: A discussion on collectible card games. In C. Steinkuehler, C. Martin, & A. Ochsner (Eds.), *Proceedings of the Games, Learning, and Society Conference: Vol. 1* (pp. 3–12). Pittsburgh, PA: ETC Press.
- Adinolf, S. & **Turkay, S.** (2011). Controlling your game controls: Interface and customization. In C. Steinkuehler, C. Martin, & A. Ochsner (Eds.), *Proceedings of the Games, Learning, and Society Conference: Vol. 1* (pp. 23–32). Pittsburgh PA: ETC Press.
- Turkay, S.** (2010). Student engagement and attitude change towards science when learning with a virtual world based curriculum: A case study. In *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2010* (pp. 248–257). Chesapeake, VA: AACE.
- Turkay, S.** & Adinolf, S. (2010). Enjoyment of customization in multi user online games: A survey study with World of Warcraft and City of Heroes/Villains players. In *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2010* (pp. 592–601). Chesapeake, VA: AACE.
- Turkay, S.**, Kinzer, C., Hoffman, D., Gunbas, N. & Nagle, C. (2010). A snapshot on youths' activities on online gaming forums: Internet and informal learning. In *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2010* (pp. 3987–3992). Chesapeake, VA: AACE.
- Turkay, S.**, & Adinolf, S. (2010). Free to be me: a survey study on customization with World of Warcraft and City Of Heroes/Villains players. *Procedia - Social and Behavioral Sciences*, 2(2), 1840-1845.
- Turkay, S.** & Tirthali, D. (2010). Youth leadership development in virtual worlds: A case study. *Procedia - Social and Behavioral Sciences*, 2(2), 3175-3179.
- Turkay, S.** & Tirthali, D. (2009). Effectiveness of using virtual worlds to promote youth change-making. In T. Bastiaens et al. (Eds.), *Proceedings of World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education 2009* (pp. 1069-1074). Chesapeake, VA: AACE.
- Hoffman, D., Paek, S., Zhou, Z. & **Turkay, S.** (2009). Gender differences in a dance-based math game. In I. Gibson et al. (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference 2009* (pp. 2545-2550). Chesapeake, VA: AACE.

Manuscripts in Preparation

- Turkay, S.** & Kinzer, C. (in preparation). *Customization as a way of control in massively multiplayer online role playing games: A survey study with four different games.*
- Turkay, S.** (in preparation). *Collectible card games and learning.*
- Turkay, S.** (in preparation). *User experiences with avatar customization in a social virtual world and massively multiplayer online game.*
- Turkay, S.** (in preparation). *The Long Term Effects of Customization on User Experiences in an Online Social Game: A Mixed Method Study.* (Doctoral Dissertation). Teachers College, Columbia University.

PEER REVIEWED CONFERENCE PRESENTATIONS

- Turkay, S.**, Kinzer, C. K., & Adinolf, S. (2013). *The effects of customization on game experiences of a Massively Multiplayer Online Game's players*. Paper presented at the Games, Learning and Society Conference, Madison, WI.
- Turkay, S.**, Adinolf, S., & Tirthali, D. (2013). *I am sorry my friend, I love you, but I don't trust you": Social dynamics in a multiplayer collectible card game*. Paper presented at the Games, Learning and Society Conference, Madison, WI.
- Kinzer, C. K., **Turkay, S.**, Hoffman, D. L., Vicari, C., de Luna, C., & Chantes, P. (2013). *Where have all the (educational) games gone*. Paper presented at the Games, Learning and Society Conference, Madison, WI.
- Kinzer, C. K., **Turkay, S.**, Hoffman, & Chantes, P. (2013). *Examining conceptual vs. computational design on understanding in a mathematics game*. Paper presented at the Games, Learning and Society Conference, Madison, WI.
- Kinzer, C., Hoffman, D., **Turkay, S.**, Chantes, P., Dvorkin, T., & Chaiwinij, A. (2012). *Relating perceptual user interfaces, new literacies, and embodied cognition in young children's literacy learning*. Paper presented at the annual meeting of Literacy Research Association, San Diego, CA.
- Turkay, S.** (2012). *Science in Second Life: Embodying scientific inquiry in a high school*. Paper presented at the Annual Meeting of American Educational Research Association, Vancouver, BC.
- Kinzer, C.K., Hoffman, D.L., **Turkay, S.** Gunbas, N. & Chantes, P. (2012). *Shaping the play experience: Examining feedback and choice in games for learning*. Paper presented at the Annual Meeting of American Educational Research Association, Vancouver, BC.
- Kinzer, C. K., **Turkay, S.**, Hoffman, D., Günbaş, N., & Chantes, P. (2011, December). *Eyetracking Students' Focus in a Multimodal Text: Implications for Pre-Service Educators*. Paper presented at the 61st annual conference of the Literacy Research Association (LRA), Jacksonville, FL.
- Kinzer, C. K., **Turkay, S.**, Hoffman, D. L., & Gunbas, N. (2011). *Students' focus in a multimodal text: Connecting eye-tracking data to narrative comprehension*. Games, Learning and Society Conference, Madison, WI.
- Turkay, S.**, Hoffman, D., Gunbas, N., & Chantes, P. (2011). *Investigating video game characters as role models in science, technology, engineering and mathematics*. Paper presented at Teachers College Educational Technology Conference, New York, NY.
- Kinzer, C. K., Hoffman, D. L., **Turkay, S.**, Gunbas, N., & Nagle, C. (2011, April). *Format matters: Narrative, learning, and motivation*. Presented at the annual meeting of the American Educational Research Association, New Orleans, LA.
- Turkay, S.** (2010). *Fostering youths' cultural intelligence in virtual environments*. Paper presented at Games, Learning and Society Conference, Madison, WI.
- Kinzer, C., Hoffman, D., **Turkay, S.**, Nagle, C., & Gunbas, N. (2010). *Toward a universal game design assessment tool: Establishing a game design patterns rubric*. Paper presented at Games, Learning and Society Conference, Madison, WI.
- Kinzer, C., Hoffman, D., **Turkay, S.**, Nagle, C., & Gunbas, N. (2010). *Narrative format, design and understanding: Are games the best way to tell a story?* Paper presented at Games, Learning and Society Conference, Madison, WI.

- Turkay, S.** (2010). *Game design for educators: Lessons learned from a capacity building program*. Paper presented at Teachers College Educational Technology Conference, New York, NY.
- Turkay, S., Hoffman, D., Nagle, C., Günbaş, N., & Kinzer, C. K.** (2010, May). *Avatar Sorter*. Game demonstration at the Games for Learning Institute's *GameFest*, part of the annual Games for Change (G4C) conference, New York, NY.
- Turkay, S., Gunbas, N., Nagle, C., & Hoffman, D.** (2010). *The stories of our lives: Narrative in games and its effect on teens' engagement in reading*. Paper presented at Teachers College Educational Technology Conference, New York, NY.
- Turkay, S. & Tirthali, D.** (2010). *Using virtual worlds to engage youth in social initiatives: A case study*. Poster presented at Annual Meeting of American Educational Research Association, Denver, CO.
- Turkay, S. & Adinolf, S.** (2010). *Customization as a way of learner control for engagement: A survey study with World of Warcraft and City of Heroes–Villains players*. Paper presented at the annual meeting of the American Educational Research Association, Denver, CO.
- Turkay, S.** (2009). *Changing students' attitudes towards science and science, technology, engineering, and mathematics (STEM) related careers with a virtual world based science curriculum*. Poster presented at Games, Learning and Society Conference, Madison, WI.
- Adinolf, S. & **Turkay, S.** (2009). *Got change? World of Warcraft and City of Heroes players' views on customization*. Paper presented at Games, Learning and Society Conference, Madison, WI.
- Turkay, S.** (2009). *Investigating gender differences with World of Warcraft and City of Heroes players*. Paper presented at Teachers College Education Technology Conference, New York., NY.
- Hoffman, D., Paek, S., Zhou, Z. & **Turkay, S.** (2009). *The impact of students' domain-specific motivations on educational video game play*. Paper presented at the annual meeting of the American Education Research Association, San Diego, CA.
- Kinzer, C. K., Hoffman, D., Lohnes, S., & **Turkay, S.** (2009). *Phases of the integrated curriculum project: Development of the anchored instruction curriculum and project research design*. Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA.
- Kinzer, C. K. & **Turkay, S.** (2009). *College students' expectations and use of a virtual environment: Examining teaching and possibilities of an emerging technology in a college course*. Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA.
- Turkay, S.** (2008). *Student engagement when learning science in Second Life*. Paper presented at the Fourth Second Life Community Convention. Tampa, FL.
- Kinzer, C., & **Turkay, S.** (2008). *Iterations of teaching in Second Life: What we know and need to know about student backgrounds, teaching possibilities, and learning outcomes*. Paper was presented at Fourth Second Life Community Convention., Tampa, FL.
- Lowes, S., Cavanaugh, C., Kennedy, K., Cavalluzzo, L. **Turkay, S.**, & Rockman, S. (2008). *Recent research on online teaching and learning: Implications for practice*. Virtual School Symposium, Glendale, AZ.

Turkay, S., Adinolf, S., & Kinzer, C. (2008). *Customizability in MMO games and its effect on player enjoyment and motivation*. Poster presented at the Games Learning and Society Conference, Madison, WI.

Kinzer, C.K., Lohnes, S., Hoffman, D., Kapur, M., Kontovourki, S., & **Turkay, S.** (2007). *Tracking engagement: How preservice teachers use and learn from a complex, multimedia, online case environment*. Paper presented at Annual meeting of American Educational Research Association, Chicago.

Kinzer, C.K., Lohnes, S., Hoffman, D., Kapur, M., Kontovourki, S., & **Turkay, S.** (2006). *Paths to conceptual change in an Internet-based, case instructional environment*. Paper presented at National Reading Conference (NRC), Los Angeles.

INVITED PRESENTATIONS

Turkay, S. (2012, December). *Games for science and mathematics learning*. Presented at the Game Day Fest, Mercy College, New York, NY.

Turkay, S. (2012, June). *Presentating a dance-based mathematics game; Mat-Matics*. Presented at the Games for Change Festival, New York, NY.

Turkay, S. (2012, May). *Presenting a mathematics game about number sequences; Kingdom of Sequences*. Presented at the Game Festival, Teachers College, Columbia University, New York, NY.

Turkay, S. (2011, November). *Cultural intelligence in virtual worlds*. Presented at Intenational Education Week. Teachers College, Columbia University, New York, NY.

Turkay, S. (2011, June). *Presenting a physics game; Tank-Q*. Presented at the Science Arcade of World Science Festival, New York, NY.

Turkay, S. (2010, May). *Spreading serious game design: Global Kids' Playing For Keeps Capacity Building Program*. Presented at Games 4 Change Festival. New York, NY.

Turkay, S. (2009, June). *Snapshots from new classrooms*. State of Play. New York Law School, New York, NY.

Turkay, S. (2009, March). *What is Sloodle?* Presented at Teachers College Technology Demo Day. New York, NY.

RELEVANT RESEARCH-RELATED SKILLS

Research methods: Experiments (treatment and control groups), focus groups, case studies, diary studies, surveys, eye tracking studies, content analysis.

Computer packages and programming languages: Proficient in, SPSS, NVivo 9, HTML 6.0., Photoshop, Flash, Dreamweaver, Action Script 3, Microsoft Office, iMovie.

Skills: Building and scripting in virtual worlds, game design, rapid prototyping.

SELECTED GAME DESIGN AND DEVELOPMENT PROJECTS

Mat-matics

An educational video game that combines arithmetic and movement, modeled on the game Dance, Dance Revolution. It is designed to provide an engaging platform for students to explore and learn strategies for solving various whole number mathematics problems. Players use their feet on a dance pad to “dance in” the correct answers, taking advantage of learning and motivational principles tied to movement.

Tank-Q

Tank Q is a physics themed game. In this game, players control a tank that trundles through a variety of interactive environments. By controlling the tank’s movement and the angle of its gun, players learn about vectors and gravity effects. The game consists of 4 modes including a 2 player mode and a story mode. Each mode has varying difficulty levels and maps to encourage players to experiment with projectiles.

Kingdom of Sequences

A flash based tower building game set in a world of magic. Players must construct sequences of numbered runes to build their own towers, and impede their opponent's progress. The goal of the game is to allow players to experiment with building number sequences, specifically, arithmetic, geometric, triangular, Fibonacci, constant and prime. The game scaffolds players’ learning through levels and help.

SERVICE AND MEMBERSHIPS

- Reviewer, *Computers in the Schools*, 2012 - present
- Reviewer, *Games+Learning+Society Conference (GLS)*, 2012 - present
- Reviewer, *Teachers College Educational Technology Conference (TCETC)*, 2010 – present
- Co-founder of the *LearnPlay* student organization, Teachers College Columbia University, 2006 – 2007
- Organizer of the Friday gaming night at Game Research Lab (EGGPLANT), Teachers College, Columbia University
- Member, American Educational Research Association (AERA), 2008 – present
- Member, Applied Research in Virtual Environments and Learning (ARVEL) SIG in AERA, member, 2008 – present
- Member, Teachers College Educational Technology Conference (TCETC), Conference Committee Member, 2010 – present

References

Dr. Charles Kinzer

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Barry Joseph

Associate Director for Digital Learning
American Museum of Natural History
Central Park West at 79th Street
New York, NY 10024
Email: bjoseph@amnh.org