Sandra Katz

Curriculum Vitae

Campus Address
Learning Research and Development Center
417 Murdoch Building
University of Pittsburgh
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Citizenship status: U.S. citizen

Academic degrees:

B.A., English; Vassar College; May 1978
D.A., English (concentration in Rhetoric and Linguistics); Carnegie Mellon University; May 1985
M.S., Information Science; University of Pittsburgh; August 1989
M.A., Anthropology (concentration in Archaeology); University of Pittsburgh; August 2013

Research interests:

Exploring the relationship between instructional dialogue and learning during human tutoring and in intelligent tutoring systems; scaffolding theory, measurement, and teacher training; technical workforce training; healthcare provider education; increasing the representation of women and minorities in scientific and technical fields

Professional Certifications:

New York State Secondary School Teaching Certification (English) May 1978
Emergency Medical Technician; Pennsylvania and national certification (NREMT) 2002

Employment:

1989-	Research Associate, Learning Research and Development Center, University of Pittsburgh
2010-2013	Research Director, Pittsburgh Science of Learning Center; Social Communication
1998-1999	Adjunct instructor, School of Education, Dept. of Psychology in Education, University of Pittsburgh
1984-1989	Research Associate, Laboratory for Computational Linguistics, Carnegie Mellon University
1983-1984	Associate Director, Communication Skills Center, Carnegie Mellon University
1980-1984	Teaching Assistant, English Department, Carnegie Mellon University

Sponsored Research:

1989-1994: United States Air Force. *Co-principal Investigator,* with Alan Lesgold. Developed and evaluated intelligent tutoring systems for avionics (*Sherlock 2*, *Eaglekeeper*).

1995-1997: Advanced Research Projects Agency. Co-principal Investigator, with Alan Lesgold (PI), Daniel Suthers, and Arlene Weiner. Developed and evaluated a computer-based learning environment to support scientific inquiry (*Belvedere*).

1995-1997: Office of Naval Research. Research Associate, with Alan Lesgold (PI). Collaborated with several other organizations (Boeing Corp.; Imetrix; Bolt, Beranek, & Newman; and Massachusetts Institute of Technology) to develop and evaluate an intelligent tutoring system to train pilots of remotely-operated underwater vehicles (*TRanSoM*).

1998-1999: Spencer Foundation, Small Grants Program. Principal Investigator. Analyzed expert-novice dialogues that took place following exercises in an ITS for avionics (*Sherlock II*).

1999-2001: Spencer Foundation, Major Grants Program. Principal Investigator. *The Interactions that Produce Learning* – Investigated the effectiveness of post-practice, reflective dialogues; developed a qualitative coding scheme to analyze the discourse structure and instructional roles of reflective dialogues; applied this method to a corpus of reflective dialogues about physics problem solving, in order to identify dialogue features that predict learning.

1999-2003: Office of Naval Research, Cognitive and Neural Sciences Division. Principal Investigator. *Modeling the Relationship Between Problem-solving Dialogue and Reflective Dialogue* – Investigated the role of post-practice, reflective dialogues in relation to instructional dialogues during problem solving. Characterized the rhetorical structure of distributed dialogues—that is, discussions that start during problem solving and continue after a correct solution has been found. Demonstrated empirically that post-practice dialogues promote learning.

2000-2004: National Science Foundation. Principal Investigator, with Mary Lou Soffa. *Learning Behaviors and Background Characteristics that Promote Retention of Women and Minorities in Undergraduate Computer Science Programs* – Identified student characteristics that predict performance and retention in an undergraduate CS program. Tracked a cohort of CS majors (and prospective majors) longitudinally—that is, throughout an undergraduate CS program, in order to identify particular topics that are "stumbling blocks" to achievement and retention, and the reasons why students leave CS at this stage.

2003-2006: Office of Naval Research, Cognitive and Neural Sciences Division. Principal Investigator. *Enhancing the Effectiveness of Dialogue-based Tutoring Systems* –Developed a web-based learning environment to serve as a research platform to identify factors that mediate the effectiveness of natural-language tutorial dialogue (e.g., different instructional roles of tutorial dialogues and when these dialogues take place). Evaluated the effectiveness of natural-language, reflective dialogues in a physics tutoring system that is used in a physics course at the US Naval Academy (*Andes*).

2005-2006: National Science Foundation (Pittsburgh Science of Learning Center). Principal Investigator. *Post-practice Reflective Dialogue in a First-year Physics Course: Does Mixed-Initiative Interaction Support Robust Learning Better than Tutor-led Interaction or Canned Text?* – Developed a post-practice, reflective module in *Andes*, an intelligent tutoring system for physics, in order to compare the effectiveness of three forms of reflection after problem-solving: canned text, tutor-led natural-language dialogue, and mixed-initiative dialogue. This study was conducted in physics classrooms at the U.S. Naval Academy.

2006-2007: National Science Foundation (Pittsburgh Science of Learning Center). Principal Investigator. *Do Reflective Dialogues that Explicitly Target the "What? How? and Why (not)?"*

Knowledge of Physics Problem Solving Promote Expert-like Planning Ability? – This project demonstrated that natural-language dialogues to guide students in planning a solution to physics problems, and post-practice reflective dialogues, promote the acquisition of general physics solution schema and problem-solving ability. This study was conducted in physics classrooms at the U.S. Naval Academy.

2006-2009: National Science Foundation, "Advanced Learning Technologies (ALT)." Co-principal Investigator, with Barbara Di Eugenio and Pamela Jordan. *A Collaborative Dialogue Agent for Peer Learning Interactions* – This project developed a computational model of peer learning interactions and implemented this model in an automated peer "learning companion" system that collaborates with students on programming tasks, via natural-language dialogue.

2006-2007: Pittsburgh Emergency Medicine Foundation. Principal Investigator, with Henry E. Wang. *Cognitive Processing During Prehospital Airway Management* – This project described and compared cognitive processes of experienced and novice paramedics during difficult prehospital airway management situations.

2007-2009: Office of Naval Research. Principal Investigator, with Diane Litman. *Cohesion During Tutorial Dialogue* – This project identified several linguistic mechanisms that make one-on-one tutorial dialogues highly "interactive" and cohesive. An experimental tutoring system was developed to serve as a research platform for studies that evaluate the effectiveness of specific cohesive mechanisms in promoting learning.

2010-2013: Institute of Education Sciences, US Dept. of Education. Principal investigator, with Michael Ford, Pamela Jordan, and Diane Litman. *Improving a Natural-language Tutoring System that Engages Students in Deep Reasoning Dialogues about Physics* – This project developed an enhanced version of a natural-language dialogue system that engages students in deep-reasoning, reflective dialogues after they solve quantitative problems in Andes, an intelligent tutoring system for physics, and assessed the potential of this system to support learning.

2013-2018: Institute of Education Sciences, US Dept. of Education. Principal investigator, with Patricia Albacete and Pamela Jordan. *Exploratory Studies to Derive Policies for Adaptive Natural-language Tutoring in Physics.* Through a series of carefully controlled experiments, this project manipulates automated dialogues in a computer-based tutoring system, in order to determine if some dialogue decision rules (policies) are more effective for learning than others, for particular types of physics content, and particular types of students. Studies are being conducted in high school physics classes.

2015-2019: Institute of Education Sciences, US Dept. of Education. Principal Investigator, with Patricia Albacete, Pamela Jordan, and Bruce McLaren. *Linking Dialogue and Student Modeling to Create an Enhanced Micro-Adaptive Tutoring System.* This project developed an enhanced version of Rimac—a tutorial dialogue system for physics intended for use with high school students—that includes a student modeling engine to drive post-problem, reflective dialogues. The student modeling engine supports generation of adaptive tutorial dialogues, by assessing students' ability and determining the right "level of support" to provide. The tutor is being evaluated in high school physics classes. Project website: https://sites.google.com/site/rimacsite/

2017-2018: Defense Health Agency (DHA), Small Business Technology Transfer (STTR) Program. Consultant, in collaboration with Aptima and the University of Toledo Interprofessional Immersive Simulation Center, and *Medic-ART, the Medics' Augmented*

Reality Trainer. A Phase 1, DOD-sponsored project to develop Medic-ART, which has three main components: (1) A framework for designing AR training technologies that draws on Activity theory; (2) web-based software that runs on virtually any computing device, displays 3D anatomical overlays and instructional text, and can be activated over a role player, manikin, or even a chalk outline of a patient, and (3) experimental research to validate and explain the effects of this medic training platform.

2020-2023: National Science Foundation, Cyberlearning and Work at the Human Technology Frontier program. Principal Investigator, with Patricia Albacete and Pamela Jordan. *Automated Debriefing in Simulation-based Training of Paramedics. Comparing Self-guided to Agent Facilitated Debriefing.* The project will develop a tool that will allow paramedic students to critique their peers' performance during simulation-based training exercises. The research goal is to compare the effectiveness of alternative approaches to automated debriefing.

Professional Affiliations:

Member: American Educational Research Association, International Artificial Intelligence in Education Society, Society for Research on Educational Effectiveness; Society of American Archaeology

Editorial Board Membership:

International Journal of Artificial Intelligence in Education

Graduate Student Committee Member:

Arthur Ward (PhD), University of Pittsburgh, Intelligent Systems Program, 2010
Patricia Albacete (PhD), University of Pittsburgh, Intelligent Systems Program, 1999.
Amy Soller (PhD), University of Pittsburgh, Intelligent Systems Program, 2002.
Michael Ringenberg (MS), University of Pittsburgh, Intelligent Systems Program, 2006.

Post-doctoral Mentorship:

Irene Angelica Chounta, with Bruce M. McLaren; Carnegie Mellon University, Human Computer Interaction Institute, 2015-2017

Graduate-level Course Taught:

Psychology of Learning and Development for Instruction, University of Pittsburgh, School of Education

Research Publications and Conference Papers

Peer Reviewed Journal Articles and Book Chapters:

Lesgold, A., Eggan, G., Katz, S., & Rao, G. (1992). Possibilities for assessment using computer-based apprenticeship environments. W. Regian & V. Shute (Eds.), *Cognitive approaches to automated instruction* (pp. 49-80). Hillsdale, NJ: Lawrence Erlbaum Associates.

Lesgold, A., & Katz, S. (1992). Models of cognition and educational technologies: Implications for medical training. In D. A. Evans & V. L. Patel (Eds.), *Advanced models of cognition for medical training and practice* (pp. 255-264). NATO ASI Series F, vol. 97. Berlin: Springer-Verlag.

Lesgold, A., & Katz, S. (1992). Technologies: Implications for medical training. *Advanced models of cognition for medical training and practice*, *97*, 255.

Lesgold, A., Katz, S., Greenberg, L., Hughes, E., & Eggan, G. (1992). Extensions of intelligent tutoring paradigms to support collaborative learning. In S. Dijkstra, H. P. M. Krammer, & J. J. G. van Merrienboer (Eds.), *Instructional models in computer-based learning environments* (pp. 291-311). Berlin: Springer-Verlag.

Katz, S., & Lesgold, A. (1993). The role of the tutor in computer-based collaborative learning situations. In S. Lajoie & S. Derry (Eds.), *Computers as cognitive tools* (pp.289-317). Hillsdale, NJ: Lawrence Erlbaum Associates.

Katz, S., Lesgold, A., Eggan, G., & Gordin, M. (1993). Modeling the student in Sherlock II. *Journal of Artificial Intelligence in Education (Special issue on student modeling, G. McCalla & J. Greer, eds.), 3*, 495-518.

Katz, S., Lesgold, A., Hughes, E., Peters, D., Eggan, G., Gordin, M., Greenberg., L. (1998). Sherlock II: An intelligent tutoring system built upon the *LRDC Tutor Framework*. In C.P. Bloom and R.B. Loftin (Eds.), *Facilitating the Development and Use of Interactive Learning Environments* (pp. 227-258). New Jersey: Lawrence Erlbaum Associates.

Katz, S., O'Donnell, G., & Kay, H. (2001). An approach to analyzing the role and structure of reflective dialogue. *International Journal of Artificial Intelligence and Education, 11*, 320-343.

Katz, S., & Allbritton, D., & Connelly, J. (2003). Going beyond the problem given: How human tutors use post-solution discussions to support transfer. *International Journal of Artificial Intelligence and Education*, Volume 13 (1) 79-116.

Katz, S., Aronis, J., Allbritton, D., Wilson, C., & Soffa, M.L. (2003). Gender and race in predicting achievement in computer science. *IEEE Technology and Society Magazine Special Issue on Women and Minorities in Information Technology*, Volume 22 (3) 20-27.

Connelly, J., & Katz, S. (2006). Intelligent dialogue support for physics problem solving: Some preliminary mixed results. *Technology, Instruction, Cognition, and Learning*, Volume 4, 1-29.

Katz, S., Allbritton, D., Aronis, J., Wilson, C., & Soffa, M.L. (2006). Gender, achievement, and persistence in an undergraduate computer science program. *DATA BASE: Special Section on IT Personnel Research, 37(4)*.

Katz, S., Aronis, J., Allbritton, D., Wilson, C., & Soffa, M.L. (2006). Traversing the undergraduate curriculum in computer science: Where do students stumble? In J. McGrath Cohoon & W. Aspray (Eds.). *Women and Information Technology: Research on the Reasons for Under-Representation* (pp. 354-371). MIT Press.

Katz, S. (2006). Gendered attrition at the undergraduate level: An overview of causes and proposed solutions. Eileen Trauth (Ed.), *Encyclopedia of Gender and Information Technology*, 714-720.

Wang, H.E., & Katz, S. (2007). Cognitive control and pre-hospital endotracheal intubation. *Prehospital Emergency Care, 11*(2), 234-239.

Katz, S., & Albacete, P. (2013). A tutoring system that simulates the highly interactive nature of human tutoring. *Journal of Educational Psychology*, 105(4), 1126-1141.

Lipschultz, M., Litman, D., Jordan, P., Katz, S., and Albacete, P. (2014) Predicting semantic changes in abstraction in tutor responses to students. *International Journal of Learning Technology*, 9(3): 281-303.

Howard (Kersey), C., Jordan, P., Di Eugenio, B., & Katz, S. (2015). Shifting the load: A peer dialogue agent that encourages its human collaborator to contribute more to problem solving. *International Journal of Artificial Intelligence in Education*, 1-29.

Allen, K.M.S., & Katz, S. (2016). Using multiscalar analyses to investigate Iroquoian settlements in Central New York State in the sixteenth century: A case study of intra- and inter-site diversity. In *Process and Meaning in Spatial Archaeology: Investigations into Pre-Columbian Iroquoian Space and Place*, edited by Eric Jones and John L. Creese. University of Colorado Press.

Howard (Kersey), C., Di Eugenio, B., Jordan, P., & Katz, S. (2017). Exploring initiative as a signal of knowledge co-construction during collaborative problem solving. *Cognitive Science, 41(16)*, 1422-1449.

Katz, S., Albacete, P., Jordan, P., Lusetich, D., Chounta, I., & McLaren, B.M. (2018). Operationalizing the contingent scaffolding of human tutors in an intelligent tutoring system. *Tutoring and Intelligent Tutoring Systems*, edited by Scotty Craig. Nova Science Publishers, Inc.

Katz, S., Albacete, P., Chounta, I., Jordan, P., McLaren, B.M., & Zapatta-Rivera, D. (2021). Linking dialogue with student modelling to create an adaptive tutoring system for conceptual physics. International Journal of Artificial Intelligence: Special Festschrift Issue to Honor Jim Greer, 31, 397-445. https://doi.org/10.1007/s40593-020-00226-y

Refereed Conference Papers:

Evans, D.A., & Katz, S. (1987). A practical lexicon for constrained NLP. In F. Marshall, A. Miller, and Z. Zhang (Eds.), *ESCOL '86: Proceedings of the Third Eastern States Conference on Linguistics* (pp. 151-162), Pittsburgh, Pennsylvania. The Ohio State University, Columbus.

Katz, S. & Lesgold, A. (1991). Modeling the student in Sherlock II. In J. Kay & A. Quilici (Eds.), *Proceedings of the IJCAI-91 Workshop W.4: Agent modelling for intelligent interaction* (pp. 93-127). Sydney, Australia.

Katz, S., Lesgold, A., Eggan, G., & Gordin, M. (1992). Self-adjusting curriculum planning in Sherlock II. *Lecture Notes in Computer Science: Proceedings of the Fourth International Conference on Computers in Learning (ICCAL '92)*. Berlin: Springer Verlag.

Katz, S., Lesgold, A., Eggan, G., & Gordin, M. (1992). Approaches to student modeling in the Sherlock tutors. In E. Andre, R. Cohen, W. Graf, B. Kass, C. Paris, and W. Wahlster (Eds.), *Proceedings of the Third International Workshop on User Modeling* (pp. 205-230), Dagstuhl Castle, Germany.

Katz, S., & Lesgold, A. (1993). Collaborative problem solving and assessment in SHERLOCK II. In L. Terveen (Ed.), *Proceedings of the Workshop on Collaborative Problem Solving*, World Conference on Artificial Intelligence in Education, Edinburgh, Scotland.

Katz, S., & Lesgold, A. (1994). Implementing post-problem reflection within coached practice environments. In P. Brusilovsky, S. Dikareva, J. Greer, and V. Petrushin (Eds.), *Proceedings of the East-West International Conference on Computer Technologies in Education* (pp. 125-30), Crimea, Ukraine. *Received a* Best Paper *award.*

Katz, S. (1995). Identifying the support needed in computer-*supported* collaborative learning systems. In Schnase, J.L., and Cunnius, E.L, *Proceedings of CSCL '95: The First International Conference on Computer Support for Collaborative Learning* (pp. 200-203), Bloomington, Indiana. New Jersey: Lawrence Erlbaum Associates.

Norback, J. S., Lesgold, A. M., Eggan, G. M., and Katz, S. (1995). The New Standards Applied Learning Framework: Tying workplace literacy to schools. In K. Hinchman (Ed.), *National Reading Conference Yearbook*. Chicago: National Reading Conference.

Katz, S., Lesgold, A., Eggan, G., and Greenberg, L. (1996). Towards the design of more effective advisors for learning-by-doing systems. In *Proceedings of ITS '96*, Montreal, Quebec. Springer-Verlag Lecture Notes in Computer Science.

Katz, S., Lesgold, A., Eggan, G., and Greenberg, L. (1996). Students' use of hypergraphic advising tools in a learning-by-doing system for electronic troubleshooting. In J-F Rouet and J. Levonen (Eds.), *Proceedings of UCIS '96: Using Complex Information Systems*, Poitiers, France.

Katz, S., Hall, E.P., & Lesgold, A.M. (1997). Cognitive task analysis and intelligent computer-based training systems: Lessons learned from coached practice environments in air force avionics. Paper presented at the Annual Meeting of the American Education Research Association, *AERA 1997*, Chicago.

Weiner, A. & Katz, S. (1997). Belvedere: Scaffolding scientific inquiry in a computer-based argumentation environment. Paper presented at the Annual Meeting of the American Education Research Association, *AERA 1997*, Chicago.

Katz, S., Suthers, D., Weiner, A., Toth, E., & Connelly, J. (1998). Guiding the development of critical inquiry skills: Lessons learned by observing students interacting with domain experts and a simulated inquiry coach. Paper presented at the Annual Meeting of the American Education Research Association, *AERA 1998*, San Diego.

Katz, S. (1999). How interactions during problem solving differ from and are related to interactions during debrief. Paper presented at the Annual Meeting of the American Education Research Association, *AERA 1999*, Montreal, Canada.

Katz, S., Aronis, J., & Creitz, C. (1999). Modelling pedagogical interactions with machine learning. In S.P. LaJoie & M. Vivet (Eds.), *Proceedings of the Ninth International Conference on Artificial Intelligence in Education* (pp. 543-550). Amsterdam: IOS Press.

Katz, S., & O'Donnell, G. (1999). The cognitive skill of coaching collaboration. In C. Hoadley & J. Roschelle (Eds.), *Proceedings of Computer Support for Collaborative Learning (CSCL) 1999* (pp. 291-9), Stanford, CA.

Katz, S., O'Donnell, G.O., & Kay, H. (1999). An approach to coding educational dialogues for descriptive and prescriptive purposes. In *Proceedings of Workshop 3 at the Ninth International Conference on Artificial Intelligence in Education—Analyzing Educational Dialogue Interaction: Towards Models that Support Learning* (pp. 22-32), http://cbl.leeds.ac.uk/~tamsin/dialogueworkshop.

Katz, S., & Soffa, M.L. (2001, October). Learning behaviors and background characteristics that promote retention of women and minorities in undergraduate computer science programs. In *NSF IT Worksforce Research Conference, Boulder, Colorado*.

Katz, S., & Allbritton, D. (2002). Improving learning from practice problems through reflection. Paper presented at the Annual Meeting of the American Educational Research Association, *AERA 2002*, New Orleans.

Katz, S., & Allbritton, D. (2002). Going beyond the problem given: How human tutors use post-practice discussions to support tranfer. In Guy Gouardères (Ed.), *Proceedings of the Sixth International Intelligent Tutoring Systems Conference, ITS 2002*, Biarritz, France, pp. 641-650.

Katz, S. (2003, July 31-Aug. 2). Distributed tutorial strategies. In R. Alterman and D. Kirsh (Eds.), *Proceedings of the 25th Annual Meeting of the Cognitive Science Society* (http://www.ccm.ua.edu/cogsci/prof131.html). Boston, MA: Cognitive Science Society.

Katz, S., Aronis, J., Allbritton, D., Wilson, C., & Soffa, M.L. (2003). A study to identify predictors of achievement in an introductory computer science course. Proceedings of *SIGCPR'03: SIG Computer Personnel Research Conference 2003*, New York: Association for Computing Machinery, pp. 157-161.

Katz, S., Allbritton, D., Aronis, J., Wilson, C., & Soffa, M.L. (2004). Increasing diversity in the information technology workforce: Implications from a study of how students learn to

program. Poster session presented at the 6th International Conference of the Learning Sciences.

Katz, S., Connelly, J., & Wilson, C. (2005, June). When should dialogues in a scaffolded learning system take place? In *World Conference on Educational Multimedia, Hypermedia and Telecommunications* (Vol. 2005, No. 1, pp. 2850-2855).

Katz, S. (2006). A comparison of three modes of reflective dialogue. Presented at the *American Association of Physics Teachers* summer meeting.

Katz, S., Connelly, J., & Wilson, C. (2007). *An Evaluation of Reflective Dialogue in Andes.* Poster presented at the Physics Education Research Conference (PERC 2007), Greensboro, NC.

Katz, S., Connelly, J., & Wilson, C. (2007). Out of the lab and into the classroom: An evaluation of reflective dialogue in Andes. In R. Luckin, K.R. Koedinger, & J. Greer (Eds.), *Artificial Intelligence in Education: Building Technology Rich Learning Contexts that Work* (pp. 425-432). Amsterdom: IOS Press.

Kersey, C., DiEugenio, B., Jordan, P. and Katz, S. (2007). Collaboration in peer learning dialogues. *DECALOG*, the 2007 Workshop on the Semantics and Pragmatics of Dialogue.

Kersey, C., DiEugenio, B., Jordan, P., & Katz, S. (2008). Modeling knowledge co-construction for peer learning. *ITS 2008, The 9th International Conference on Intelligent Tutoring Systems, Student Research Workshop*, Montreal, Canada.

Connelly, J., & Katz, S. (2009). Towards more robust learning of physics via reflective dialogue extensions. In *World Conference on Educational Multimedia, Hypermedia and Telecommunications* (Vol. 2009, No. 1, pp. 1946-1951).

Kersey, C., DiEugenio, B., Jordan, P., & Katz, S. (2009). Knowledge co-construction and initiative in peer learning interactions, *AIED 2009, the 14th International Conference on Artificial Intelligence in Education*, Brighton, Great Britain.

Kersey, C., DiEugenio, B., Jordan, P., & Katz, S. (2009). KSC-PaL: A peer learning agent that encourages students to take the initiative. In *Proceedings of the Fourth Workshop on Innovative Use of NLP for Building Educational Applications* (pp. 55-63). Association for Computational Linguistics.

Ward, A., Connelly, J., Katz, S., Litman, D., & Wilson, C. (2009). Cohesion, semantics, and learning in reflective dialogue. In *Proceedings of the Workshop on Natural Language Processing in Support of Learning: Metrics, Feedback, & Connectivity*, held with the 14th International Conference on Artificial Intelligence in Education, AIED 2009.

Ward, A., Connelly, J., Katz, S., Litman, D., & Wilson, C. (2009). Cohesion, semantics,a nd learning in reflective dialogue. In *Proceedings of the Workshop on Natural Language Processing in Support of Learning: Metrics, Feedback, and Connectivity*, held with the 14th International Conference on Artificial Intelligence in Educatino, AIED 2009.

Kersey, C., DiEugenio, B., Katz, S., & Jordan, P.W. (2010). KSC-PaL: A peer learning agent. In *Proceedings of ITS 2010: 10th International Conference on Intelligent Tutoring Systems*, Vincent Aleven and Judy Kay (Eds.), Pittsburgh, PA.

Allen, K.M.S., & Katz, S. (2011). Iroquoian settlements in Central New York State in the sixteenth century: A case study of Intra- and Inter-site Diversity. Paper presented at the 2011 Society for American Archaeology meeting, in the symposium titled, *Bridging the US-Canadian Border: The Anthropological Archaeology of Northern Iroquoian Peoples*, organized by Eric E. Jones, Sacramento, CA.

Katz, S., Albacete, P., Jordan, P., & Litman, D. (2011). Dialogue analysis to inform the development of a natural-language tutoring system. In *Proceedings of the Workshop on the Semantics and Pragmatics of Dialogue (SemDial)*, Los Angeles, CA, September.

Katz, S., Englebrecht, W., & Allen, K.M.S. (2011). Hearthside activities as a reflection of economic organization at the Eaton site. Paper presented at the 2011 Society for American Archaeology meeting, Sacramento, CA.

Katz, S., Jordan, P., Litman, D., and the Rimac Project Team. (2011). Rimac: A Natural-language dialogue system that engages students in deep reasoning dialogues about physics. In *Proceedings of the Society for Research on Educational Effectiveness (SREE)* meeting, Washington, DC, March. (poster and short paper)

Lipschultz, M., Litman, D., Jordan, P., & Katz, S. (2011). Predicting changes in level of abstraction in tutor responses to students. In *Proceedings of the 24th Annual Florida AI Research Conference* (FLAIRS-2011), P. McCarthy & C. Murray (Eds.), Palm Beach, Florida, May.

Jordan, P., Katz, S., Albacete, P., & Ford, M. (2012). Reformulating student contributions in tutorial dialogue. In INLG 2012, *Proceedings of the 7th International Natural Language Generation Conference*, pp. 95-99, Utica, May 2012, Association for Computational Linguistics.

Jordan, P., Albacete, P., Ford, M.J., Katz, S., & Lipschultz, M. (2012). Eliciting student explanations during tutorial dialogue for the purpose of providing formative feedback. In AIED 2013, *Proceedings of the Workshop on Formative Feedback.*

Lipschultz, M., Litman, D.J., Jordan, P.W., & Katz, S. (2012). Evaluating learning factors analysis. In *Workshop and Poster Proceedings of the 20th International Conference on User Modeling, Adaptation and Personalization (UMAP).* Montreal, Canada, July. (poster and short paper)

Clarke, S., Chen, G., Stainton, C., Katz, S., Greeno, J.G., Resnick, L.B., Howley, I., Adamson, D., & Rosé, C.P. (2013). The impact of CSCL beyond the online environment. In *Proceedings of the 10th International Conference on Computer Supported Collaborative Learning*, Madison Wisconsin.

Jordan, P., Albacete, P., Ford, M., Katz, S., Lipschultz, M., Litman, D., Silliman, S., & Wilson, C. (2013). The Rimac Tutor: A simulation of the highly interactive nature of human tutorial dialogue. (interactive event). In AIED 2013, *Proceedings of the 9th International Conference of AI in Education.*

Jordan, P., Albacete, P., Ford, M.J., Lipschultz, M., Litman, D., Silliman, S., & Wilson, C. (2013). Interactive Event: The Rimac tutor: A simulation of the highly interactive nature of human tutorial dialogue. In *Proceedings of the 16th International Conference on Artificial Intelligence in Education (AIED),* pages 928-929, Memphis, TN, July. (demo and short paper).

Jordan, P., Albacete, P., Ford, M.J., Katz, S., & Lipschultz, M. (2013). Eliciting student explanations during tutorial dialogue for the purpose of providing formative feedback. In *Proceedings of AIED Workshop on Formative Feedback in Interactive Learning Environments*. Memphis.

Katz, S., Albacete, P., Ford, F., Jordan, P., Lipschultz, M., Litman, D., Silliman, S., & Wilson, C. (2013). Pilot test of a natural-language tutoring system for physics that simulates the highly interactive nature of human tutoring. In *Proceedings of the 16th International Conference on Artificial Intelligence in Education (AIED),* pages 636-639, Memphis, TN, July. (poster and short paper)

Katz, S., and Allen, K.M.S. (2013). Stone tool-making within a house structure at Parker Farm. Paper presented at the annual meeting of the New York State Archaeological Society, Cortland, NY.

Katz, S., Jordan, P., & Albacete, P. (2014). Rimac: A natural-language tutoring system that supports students' understanding of physics concepts. Paper presented at the *Ohio Educational Technology Conference (OETC 2014)*, Columbus Ohio.

Katz, S., Albacete, P., and Jordan, P. (2014). Summarization during Tutoring: Implications for Developing Micro-Adaptive Tutoring Systems. Paper presented at the *12th International Conference on Intelligent Tutoring Systems, Workshop 10: Pedagogy that Makes a Difference: Exploring Domain-Independent Principles across Instructional Management Research within the ITS Community*, B. Goldberg & R. Sottilare (eds.), pp. 10-17.

Albacete, P., Jordan, P., & Katz, S. (2015). Is a dialogue-based tutoring system that emulates helpful co-constructed relations during tutoring effective? In *Proceedings of the 17th International Conference on Artificial Intelligence in Education (AIED 2015).*

Jordan, P., Albacete, P., & Katz, S. (2015). When is it helpful to restate student responses within a tutorial dialogue system? In *Proceedings of the 17th International Conference on Artificial Intelligence in Education (AIED 2015).*

Jordan, P., Albacete, P., & Katz, S. (2015). Exploring the effects of redundancy within a tutorial dialogue system: Restating students' responses. In *Proceedings of the 16th Annual SIGdial Meeting on Discourse and Dialogue*.

Katz, S., Jordan, P., & Albacete, P. (2015). An intelligent tutoring system that supports conceptual understanding of physics. Poster presented at the *Physics Education Research Conference* (PERC 2015).

Chounta, I-A., McLaren, B., Albacete, P., Jordan, P., & Katz, S. (2016). Analysis of human-to-human tutorial dialogues: Insights for teaching analytics. The 4th International Workshop on Teaching Analytics at Ec-Tel 16.

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