Tamara L. Clegg

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Education

Ph.D. August 2010
School of Interactive Computing
College of Computing, Georgia Institute of Technology
Dissertation: Kitchen Science Investigators: Building Identity as Scientific Reasoners and Thinkers
Advised by Dr. Janet Kolodner

Bachelor of Science. Computer Science (2002)
North Carolina State University
Summa Cum Laude

Publications

Journals

Ahn, J., Clegg, T., Yip, J., Bonsignore, E., Pauw, D., Gubbels, M., Lewittes, B., & Rhodes, E. (*Forthcoming*). Seeing the Unseen Learner: Designing and Using Social Media to Recognize Children's Science Dispositions in action. Accepted in *Learning Media and Technology*.

Clegg, T., & Kolodner, J. (2014). Scientizing and Cooking: Helping Middle-School Learners Develop Scientific Dispositions. *Science Education*, 98(1), 36-63.

Foss, E., Guha, M.L,, Papadatos, P., Clegg, T., Yip, J., and Walsh, G. (2013). Cooperative Inquiry extended: Creating technology with middle school students with learning differences. *Journal of Special Education Technology, 28*(3), 33-46.

Clegg, T., & Kolodner, J. (2007). Bricoleurs and Planners Engaging in Scientific Reasoning: A Tale of Two Groups in One Learning Community. *Research and Practice in Technology Enhanced Learning,* 2(3), 239-265.

Conferences

Yip, J., Ahn, J., Clegg, T., Bonsignore, E., Pauw, D., & Gubbels, M. (2014). "It Helped Me Do My Science." A Case of Designing Social Media Technologies for Children in Science Learning. Paper presented at the Interaction, Design, and Children Annual Conference, Aarhus, Denmark.

Clegg, T., Bonsignore, E., Ahn, J., Yip, J., Pauw, D., Gubbels, M., Lewittes, B., & Rhodes, E. (2014). Capturing Personal and Social Science: Technology for Integrating the Building Blocks of Disposition. Paper presented at the International Conference of the Learning Sciences. Boulder, CO.

Yip, J.C., Clegg, T.L., Ahn, J., Bonsignore, E., Gubbels, M., Rhodes, E., & Lewittes, B. (2014). The role of identity development within tensions in ownership of science learning. International Conference of the Learning Sciences. Boulder, CO.
* Paper nominated for Best Student Paper award

Yip, J., Clegg, T., Bonsigore, E., Gelderblom, H., Rhodes, E., and Druin, A. (2013) *Brownies or Bags-of-Stuff? Domain Expertise in Cooperative Inquiry with Children*. Paper Presented at the Interaction, Design, and Children Annual Conference, New York, NY.

Clegg, T., Yip, J., Ahn, J., Bonsignore, E., Gubbels, M., Lewittes, B., & Rhodes, E. (2013). *When Face-to-Face Fails: Opportunities for Social Media to Foster Collaborative Learning*. Paper presented at the Computer Supported Collaborative Learning Conference, Madison, WI.

Bonsignore, E., Ahn, J., Clegg, T., Guha, M.L., Yip, J., & Druin, A. (2013). *Embedding Participatory Design into Designs for Learning: An Untapped Interdisciplinary Resource?* Symposium presented at the Tenth Annual Conference of Computer Supported Collaborative Learning, Madison, WI.

Tate, E., Clegg, T., Zimmerman, H., Gardner, C., Sato, T., Calabrese-Barton, A., & Brown, B. (2013). Inside Personally Relevant Science Learning Contexts: How Do Learners Connect Science to their Everyday Lives? Symposium presented at the National Association for Research in Science Teaching. Rio Grande, Puerto Rico.

Clegg, T., Bonsignore, E., Yip, J., Kuhn, A., Gelderblom, H., Valenstein, T., & Druin, A. (2012). *Technology for supporting life-relevant learning in science.* Paper presented at the Interaction, Design, and Children, Bremen, Germany.

Walsh, G., Druin, A., Guha, M.L., Bonsignore, E., Foss, E., Yip, J., Golub, E., Clegg, T., Brown, Q., Brewer, R., Joshi, A., & Brown, R. (2012). *DisCo: A Co-Design Online Tool for Asynchronous Distributed Child and Adult Design Partners.* Paper presented at the Interaction, Design, and Children, Bremen, Germany.

Rick, J., DeVane, B., Clegg, T., & Peters, V., Goldman, S., Hmelo-Silver, C. (2012). *Learning as identity formation: Implications for design, research, and practice*. Symposium presented at the International Conference of the Learning Sciences, Sydney, Australia.

Yip, J., Clegg, T., Bonsignore, E., Gelderblom, H., Lewittes, B., Guha, M. L., & Druin, A. (2012). *Kitchen chemistry: Supporting learners' decisions in science*. Paper presented at the International Conference of the Learning Sciences, Sydney, Australia.

Yip, J., Clegg, T., Druin, A., Guha, M. L., Bonsignore, E., Foss, E., Golub, E., Walsh, G. (2012). *Cooperative inquiry in designing technology in life-relevant learning for science.* Paper presented at the American Educational Research Association, Vancouver, British Columbia, Canada.

Clegg, T., Gardner, C., & Kolodner, J. (2011). *Technology for supporting learners in physically demanding out-of-school learning environments.* In Spada, H., Stahl, G., Miyake, N., and Law, N. (Eds.) Connecting Research to Policy and Practice: Proceedings of the Computer Supported Collaborative Learning (pp. 248-255), Hong Kong, China.

Clegg, T., Gardner, C., & Kolodner, J. (2010). *Playing with Food: Turning Play into Scientifically Meaningful Experiences*. In Gomez, K., Lyons, L., & Radinsky, J. (Eds.) Learning in the Disciplines: Proceedings of The International Conference of the Learning Sciences (pp. 1135-1142), Chicago, IL.

Clegg, T., & Kolodner, J. (2010). *Making Science Social: A Closer Look at How Social Interactions Impact Scientific Participation.* Paper presentation at the American Educational Research Association, Denver, CO.

Abler, R., Krogmeier, J., Ault, A., Melkers, J., Clegg, T., & Coyle, E. (2010). *Enabling and Evaluating Collaboration of Distributed Teams with High Definition Collaboration Systems.* Paper presented at the American Society for Engineering Education, Louisville, KY.

Clegg, T., Gardner, C., Williams, O., & Kolodner, J. (2006). Promoting Learning in Informal Environments. In Barab, S., Hay, K., & Hickey, D. (Eds.), Proceedings of the International Conference of the Learning Sciences (pp. 92-98), Bloomington IN.

Presentations

Clegg, T. (2013). **Keynote:** *The Potential of Technology for Enhancing Scientific Disposition Development*. Presented at the 2nd Annual Learning Science Workshop: Research and Innovation for Enhancing Achievement and Equity. Carnegie Mellon University, Pittsburgh, PA.

Clegg, T. (2013). The Potential of Technology for Enhancing Scientific Disposition Development. Presented at the Center for Math Education Colloquium. College Park, MD.

Clegg, T. (2011). *The role of out-of-school programs for promoting the development of learners' scientific identity*. Presented at the DFG-NSF Conference on the Public Understanding and Public Engagement with Science, New York, NY.

Clegg, T. (2008). *Kitchen Science Investigators: Building Identity as Scientific Reasoners and Thinkers.* Presented at the International Conference of the Learning Sciences Doctoral Consortium, Utrecht, The Netherlands.

Workshops

Gardner, C., & Clegg, T. (2009). Kitchen Science Investigators (KSI): Kicking up the Science a Notch in your After-school program, *National Afterschool Association Workshop*. New Orleans, LA.

Posters

Bonsignore, E., Ahn, J., Clegg, T., Yip, J., Pauw, D., Gubbels, M., Lewittes, B., & Rhodes, E. (2014). Selfies for Science: Collaborative Configurations Around ScienceKit. Poster Presented at the Computer Supported Cooperative Work and Social Computing Annual Conference. Baltimore, MD.

Ahn, J., Gubbels, M., Yip, J., Bonsignore, E., & Clegg, T. (2013). Using social media and learning analytics to understand how children engage in scientific inquiry. Poster Presented at the Interaction, Design, and Children Annual Conference, New York, NY.

Gardner, C. M., Clegg, T., Williams, O. L., & Kolodner, J. L. (2006). *Messy Learning Environments: Busy Hands and Less Engaged Minds*. In S. Barab, K. Hay, & D. Hickey (Eds.), Proceedings of The Seventh International Conference of the Learning Sciences (pp. 926-927), Bloomington, IN.

References in the Popular Press

Lagorio, C. (2008, January 4, 2009). Kitchen Chemistry for Middle Schoolers. *The New York Times* http://www.nytimes.com/2009/01/04/education/edlife/ideas-kitchenscience-t.html.

Get The Gray Matter Cooking. (2008). *The Next Big Thing*. U.S.: CNN http://www.cc.gatech.edu/news/multimedia/video/kitchen-science-investigators.

Research Experience

2010 – 2012 **Computing Innovations Fellow** – The Design of Life-Relevant Learning Technology and Activities, University of Maryland College Park

Developing technology to support life-relevant learning environments where children engage in science in the context of achieving goals relevant to their lives. Using participatory design with children to design these new technologies and new uses of existing technologies. Engaging youth in the design of both learning activities and technologies and seeking to understand the identity development that happens as a

result of these life-relevant learning experiences.

Fall 2009 **Graduate Research Assistant** – Vertically Integrated Projects (VIP) Program
School of Public Policy, Georgia Institute of Technology

Ran a qualitative and quantitative assessment of the VIP Program, where undergraduate students work on long term, large scale research teams with faculty members and graduate students. Created a focus group interview protocol and survey for the initial round of data collection. Conducted focus groups with each VIP team and analyzed the results of the focus group. Included this initial analysis in a conference paper detailing the program and initial results.

Summer 2009 **Graduate Research Assistant** – C-PATH Initiative
College of Computing, Georgia Institute of Technology

Conducted a qualitative study of the THREADS undergraduate program and the Mentoring program within the College of Computing at Georgia Tech by interviewing undergraduate student mentors participating in the THREADS program.

2004 – 2010 **Graduate Research Assistant** – Kitchen Science Investigators (KSI)
Research Group, Georgia Institute of Technology

Creating and implementing an after school program in which elementary and middle school students learn science through cooking. Responsibilities on this project include: software design and implementation, curriculum design, data analysis, writing for grant proposals, and project management.

2007-2008 **Kitchen Science Investigators Dissertation Study**
Designed and implemented a yearlong research study with the KSI research team. Conducted a series of semi-structured interviews with five focal students, their science teachers, and their parents. Served as a lead facilitator in the learning environment, as well as a lead graduate student on the research team. Held weekly meetings to revise and enhance the design of the learning environment.

2007 **Kitchen Science Investigators Summer Camps**
Designed, implemented, and facilitated three weeklong summer camps held in conjunction with the KSI research team and Georgia Tech's Center for Education Integrating Science, Mathematics, and Computing (CEISMC). Developed and refined software support for the learning environment and activity sequencing. Conducted initial data analysis for identity development to design dissertation study analysis.

2006 **Kitchen Science Investigators Teacher Training and Summer Camp**
Conducted teacher-training sessions to train local public school teachers to run a weeklong implementation of the Kitchen Science Investigators Program. Refined software and activity design based on analysis of the weeklong implementation of the program.

2005, 2006 **Kitchen Science Investigators After-School Studies**
Conducted ten-week after-school studies during Spring of 2005 and Spring of 2006. Analyzed data from these studies to look at learners' development of science understanding and scientific participation of learners with different planning styles and interests. Developed design guidelines and needs based on analyses of these studies for software, activities, and activity sequencing.

2002 **Undergraduate Research** - North Carolina State University
Undergraduate Affairs Dept.

Constructed detailed criteria for the effective use of technology in grade schools. Put together an extensive survey for the evaluation of technology in public schools. Composed and presented an analysis report of the findings.

2001 **Summer Undergraduate Program in Engineering Research at Berkeley (SUPERB)**
University of California at Berkeley
Electrical Engineering and Computer Science Dept.

Conducted database research project entitled, Using Telegraph To Analyze Data on the Deep Web. Wrote software to search the deep web (World Wide Web content that is indexed by search engines). Applied the concept of hubs and authorities to the data found with the software to analyze the data on the deep web. Composed and presented an analysis report of the findings.

Research Community Participation

2011 - 2014 **The International Society of the Learning Sciences**
Contributing member of the Publications and Communications Committee.

2012 – 2013 **Instructional Science Journal**
Reviewer of journal submissions.

2010 - 2012 **National Science Foundation**
Reviewed grant proposals for three NSF programs.

2008 - 2010 **The International Conference of The Learning Sciences**
Reviewed full and short papers submitted to the conference.

2010 - 2011 **The ACM CHI Conference on Human Factors in Computing Systems**
Reviewed CHI works in progress and full paper submissions to the conference.

2010 – 2012 **American Educational Research Association**
Reviewed full paper, symposium, and short paper submissions to the annual conference.

2007 - 2011 **The International Conference on Computer Supported Collaborative Learning**
Reviewed full and short papers submitted to the conference.

2008 **NSF LIFE Center Workshop**
Diversity as a Construct in Research: Conceptual and Methodological Challenges and Opportunities
Invited participant in the workshop focusing on issues surrounding diversity in learning. Participated in small group and community-level discussions on ideas, opportunities, and challenges in research on diversity in learning.

2007 **Journal of the Learning Sciences**
Reviewed a journal article submitted to the journal.

Professional Experience

2004 **Software Developer** at AT&T Research Laboratory
Florham Park, NJ

Developed and implemented data visualization software for automated speech recognition

data analysis research. This software is currently being used to analyze the effectiveness of the company's speech recognition technology.

1998 – 2003 **International Business Machines**
Research Triangle Park, NC

Enhanced and carried out test cases with the Websphere Eclipse testing team. Completed version release product testing for IBM's premier Web Analyzer software. Performed tests on VisualAge product for double byte character languages. Designed and implemented a departmental intranet web page. Developed process refinement techniques by verifying problem tracking reports. Constructed a database for IBM VisualAge customers.

Teaching Experience

Spring 2013 **Applications of Computers in Instructional Settings (EDCI 687)** – Department of Teaching and Learning, Policy and Leadership, College of Education
University of Maryland
Instructor
Responsibilities: Planning and delivering course lectures; designing activities, projects, and coursework; grading coursework; mentoring students in design projects. This course covers principles of design of learning technologies and the design of learning experiences with technology. In addition, the course explores how these designs are informed by theories and approaches to learning. Teach students to take a design perspective, envisioning new and innovative ways to use technology and new types of technology. Assembled reading list to include journal and conference papers, book chapters, government documents, and more. Led small group in-class exercises, class discussions, short homework assignments, and final group project presentations.

Fall 2012 **Human-Computer Interaction Design Methods (INST 632)** – College of Information Studies
University of Maryland
Instructor
Responsibilities: Planning and delivering course lectures; designing activities, projects, and coursework; grading coursework; mentoring students in design projects; advising students in the HCI Masters program. This course included a joint project with a Landscape Architecture course (Junior Design Studio) and an Anthropology course (Qualitative Methods in Applied Anthropology). Students collaborated with across the courses in an HCI design project focused on the design of new technology for the UMD campus mall. This project was shared with the Office of Facilities Management who is considering the resulting design in their renewal and enhancement efforts of the McKeldin Mall.

Fall 2011 **Human-Computer Interaction Design Methods (INST 632)** – College of Information Studies
University of Maryland
Co-instructor
Responsibilities: Planning and delivering course lectures, projects, activities, and coursework; grading coursework; mentoring students in design projects; advising students in the HCI Masters program.

Summer 2010 **Computing and Society** – College of Computing
Georgia Institute of Technology
Teaching Assistant
Responsibilities: Guess Lectures, assistance with course planning, grading coursework, and mentoring students in writing and debate projects.

2009/2010 **User-Interface Design** – College of Computing

Georgia Institute of Technology
Teaching Assistant
Responsibilities: Guess Lectures, assistance with course planning, grading coursework, and mentoring project teams for the undergraduate User-Interface Design course.

2008 **Educational Technology** – College of Computing
Georgia Institute of Technology
Teaching Assistant
Responsibilities: Guest Lectures, grading coursework, and course maintenance for the undergraduate Educational Technology course. In previous semesters also served as guest lecturer for both undergraduate and graduate Educational Technology courses.

2008 **Empirical Methods in HCI** – College of Computing
Georgia Institute of Technology
Teaching Assistant
Graduate and undergraduate course concerning qualitative methods in Human Computer Interaction. Responsibilities include grading coursework, advising students, and serving as guest lecturer.

2007 **Introduction to Graduate Studies** – College of Computing
Georgia Institute of Technology
Teaching Assistant
Introductory course for first year PhD Students in Computer Science. Responsibilities include organizing and participating in graduate panels and grading coursework and presentations.

2003 **Introduction to Constructing Proofs** – Georgia Institute of Technology
Teaching Assistant
Undergraduate level course for beginning level CS majors. Responsibilities include grading coursework and serving as guest lecturer.

1999 – 2002 **Lecture Assistant** – Mathematics Department
North Carolina State University
Instructor for weekly lab sections of undergraduate Accounting Mathematics, Introductory Calculus

Mentoring

2008 **Intel-SAIC Undergraduate Research Mentor**
Led a team of two Computer Science undergraduate students whose project involved software and video data analysis for the Kitchen Science Investigators research project.

Awards and Recognition

2004 – 2007 **AT&T Laboratories Fellowship Award**
Fellowship Recipient
Selected to receive the fellowship covering all educational expenses. The fellowship is awarded to outstanding under-represented minority and women students who are pursuing Ph.D. studies in computer and communications-related fields.

2008 **College of Computing Best Undergraduate Teaching Assistant**
Award recipient for guest lecturing, advising students, and assisting in grading responsibilities for an undergraduate course.

2003 – 2010 **Facilitating Academic Careers in Engineering**
Fellowship Recipient

Georgia Institute of Technology
Fellowship provides a stipend and monthly enrichment workshops to African-Americans attaining doctorates in engineering and science. Workshops are aimed to encourage and facilitate recipients to pursue academic careers.