

Christina M. Gardner

347 11th Street, NW * Atlanta, GA 30318 * 404-391-1882

<http://home.cc.gatech.edu/cmgardne>

Christina.Gardner@gatech.edu

RESEARCH INTERESTS

Investigation of the social, mental, material, technological, and historical dimensions of middle school children's learning and understanding of science content. Specifically focusing on the impact of the spatial, material, and social configurations of the learning environment on the interactions learners have with the resources (e.g., computers and physical materials), peers, and facilitators, and the subsequent learning that evolves from these interactions in designed learning environments. I am particularly interested in synthesizing and extending current perspectives of cognition (i.e., situated cognition, distributed cognition, socio-cognitive, socio-cultural, and cognitive-constructivist) through my work.

EDUCATION

GEORGIA INSTITUTE OF TECHNOLOGY

Atlanta, GA

College of Computing

Ph.D. Student, Computer Science

August 2005 – May 2009 (Expected)

Area of Focus: Learning Sciences & Technology

Research Advisor: Dr. Janet L. Kolodner

G.P.A.: 4.0/4.0

M.S., Computer Science

August 2003 – May 2005

Specialization in Software Engineering/ Learning Sciences & Technology

G.P.A.: 3.67/4.0

SYRACUSE UNIVERSITY

Syracuse, NY

L.C. Smith College of Engineering and Computer Science

B.S., Computer Engineering

July 1998 – May 2002

G.P.A.: 3.4/4.0

CITY UNIVERSITY of LONDON

London, England

Study Abroad Program

Disciplinary Focus: Computer Systems Engineering

September 2000 – June 2001

HONORS & AWARDS

Facilitating Academic Careers in Engineering and Science (FACES) Fellowship

2005 - Present

Student Teacher Enhancement Partnership (STEP) Fellowship

2004 - 2005

National Consortium for Graduate Degrees for Minorities in Engineering and Science Fellowship

2002 - 2004

RESEARCH EXPERIENCE

GEORGIA INSTITUTE OF TECHNOLOGY

Kitchen Science Investigators

Atlanta, GA / Fall 2007 - Present

Currently running a year long study of the Kitchen Science Investigators project with African American middle school girls at a local suburban school in partnership with the local YWCA's Teen Girls in Technology program. In the program, learners engage in exploration of science through hands-on inquiry investigations to discover the science behind their cooking. This study combines the two curriculum we've developed in previous studies, Thickeners and Leaveners. The study is tracking learning throughout the year to determine the socio-technical and material factors that affect the learning.

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Kitchen Science Investigators

Atlanta, GA / Summer 2007

Ran three one week all day studies to evaluate the usage of a revised Thickener curriculum and facilitation style with the support of software we designed for helping learners to design experiments. Preliminary results suggest the software and new facilitation style supported learners in designing and carrying out experiments.

Kitchen Science Investigators

Atlanta, GA / Summer 2006 – Spring 2007

Co-trained 10 elementary/middle school teachers to facilitate KSI sessions. Ran a one week 15 hour study with 60 rising fifth and sixth graders. Designed and used a new version of the KSI software, an online cooking magazine with three unique writing places. Redesigned the Thickener activities and activity sequence from Spring 2006 focusing learners attention to properties of starch granules in common household starch thickeners. Analyzed data from the online magazine contributions and found that learners liked having different places to write and that they were able to make varying degrees of causal and mechanistic explanations of the science they experienced in KSI. Future work to design more support for the types of writing needed to help learners make connections between the science and their experiences, to integrate the software better in to activities of the learning environment, and to move into a more underserved community.

Kitchen Science Investigators

Atlanta, GA / Fall 2005 – Spring 2006

Contributed to the redesign of the KSI Software using an application suite metaphor. Co-Facilitated a 10-week study with 17 Sixth graders at a private school. Designed the Thickener activities and activity sequence, which highlights the role starch thickeners play in thickening food. We learned that we needed a more compelling way to get kids to revisit observations and different wiring spaces to accommodate different participation styles.

Kitchen Science Investigators

Atlanta, GA / Fall 2004– Summer 2005

Designed the Leavening activities and activities sequence, which highlights the role of eggs, yeast, baking soda, and baking powder play in baked recipes. Cooking and Science activities highlighted acid and base reactions, fermentation, and properties of egg proteins. Redesigned the KSI software using the CoWeb/Swiki to promote connectivity of content over time using a website metaphor. We ran a 10 week study with 16 fifth graders using paper based media and the new version of the software. We found that having accompanying science experiments for the cooking activities really made the science salient, and that the physical positioning of the software and other media in the learning environment affected the type of reflection. This work was part of my masters' project.

Little League Cooking

Atlanta, GA / Spring – Summer 2004

Co-designed the Little League Cooking informal learning environment to engage middle school learners in scientific reasoning. The idea behind the program was to have learners engage in exploration of science through hands-on inquiry investigations of the science behind their cooking. The program was conceptually modeled after little league sports. Developed the initial web-based prototype of software using the CoWeb/Swiki for a two week study using a laboratory notebook metaphor. We found that cooking was a good way to engage middle school children in science exploration, and that kids weren't afraid of computers in the kitchen. However, we found that learners were very competitive. After this study we changed the name to Kitchen Science Investigators to reflect the change in our approach to make the environment less competitive and more cooperative and collaborative. This work was part of my masters' project.

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TEACHING EXPERIENCE

Empirical Methods in HCI/ User Interface Design & Evaluation Teaching Assistantship Atlanta, GA/ Present

Teaching assistant for a combined undergraduate and graduate course on qualitative methods in the design and evaluation of user interfaces and technologies. Responsibilities include grading students work, supporting the course instructor in providing feedback, advice, and direction for students as they are trying out qualitative methods (i.e. interviewing and observation), analyzing and writing up their data.

Introduction to Educational Technologies Teaching Assistantship Atlanta, GA/ Fall 2007

Teaching assistant for an undergraduate course on the theoretical foundations and design of educational technologies. Taught five lectures, graded assignments, and provided feedback to students on projects and presentations. Assisted the professor in designing the course and course materials. These responsibilities included reading suggestions, assignment and project descriptions creation, and course website management.

Westlake High School Computer Science Course Designer and Guest Instructor Atlanta, GA / May 2005 – December 2005

Designed a project-based introduction to computer science curriculum with the Math and Science Magnet Coordinator and course instructor. Co-taught the course for Fall 2005 semester.

Student Teacher Enhancement Partnership (STEP) Fellow Atlanta, GA / May 2004 – May 2005

Teaching assistant and co-instructor at Westlake High School in Atlanta, GA. Co-taught Math SAT Prep for low-achieving 11th and 12 grade students. Offered an after-school SAT Prep for one year, including content from the New SAT. Assisted in mentoring students in the Math, Science, and Technology (MST) ninth grade Magnet class. Designed and piloted two projects in the MST course (1) the resume and career project and (2) the website and html project.

Academic Excellence Workshop (AEW) Facilitator Syracuse, NY / 1999-2000/ 2001-2002

Facilitated Calculus I-III workshops for computer science and engineering students. The workshop was taken by students in addition to the calculus course. It challenged learners to apply concepts learned in their calculus courses to novel engineering word problems and helped them work collaboratively. The workshops were 2 hours long once a week for the duration of the semester.

PUBLICATIONS

Gardner, C.M. & Kolodner, J. L. (2007). Turning on Minds with Computers in the Kitchen: Supporting Group Reflection in the Midst of Engaging Hands-on Activities. *Proceedings of the Seventh International Conference on Computer Supported Collaborative Learning (CSCL'07)*. New Brunswick, NJ..

Gardner, C. M., Clegg, T. L., 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). Mahwah, NJ: Lawrence Erlbaum Associates.

Clegg, T., Gardner, C., Williams, O., & Kolodner, J. (2006). Promoting Learning in Informal Learning Environments. In S. Barab, K. Hay, & D. Hickey (Eds.), *Proceedings of the Seventh International Conference of the Learning Sciences* (pp. 92-98). Mahwah, NJ: Lawrence Erlbaum Associates.

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INDUSTRY EXPERIENCE

- IBM**
- Shark Program Management- Equipment Coordinator Co-op** Tucson, AZ / January – August 2003
Managed over \$39.2 Million in Shark (Enterprise Storage Servers) Program Development Assets. Coordinated the strategic transfer of assets to minimize financial impact to the organization. Developed an interdepartmental asset tracking Lotus Notes database to promote asset location and ownership awareness.
- Pervasive Computing Tester Co-op** Research Triangle Park, NC / Summer 2002
Installed and configured Sun Blade 2000 and AIX machines with MQ Series Client and Server software to communicate with WebSphere Portal Server (WPS) Portlets. Documented the procedure for the installation and configuration of the MQ Series and WPS Portlet interface. Developed scenarios, scripts and tests to evaluate the performance impact of WPS portlets individually and when grouped using capacity and load simulators.
- Intellectual Assets Licensing Co-op** East Fishkill, NY / Summer 2000, Summer 2001
Researched, acquired, and reverse engineered products from high potential licensing revenue companies. Demonstrated product infringement relevant to patents held in IBM patent portfolio. Investigated optics industry and IBM optics patent portfolio to create a charter that assists in identifying potential licensing companies.
- Tool Application Developer Co-op** East Fishkill, NY / Summer 2000
Developed and implemented device driver in C for a measurement tool to decrease time and increase resource efficiency in final wafer inspection process. The driver retrieved data from the measurement tool, formatted, and encoded it for serial port transmission, and inserted it into an application running on an OS/2 platform using OS/2 operating system services.
- DUN & BRADSTREET**
- Software Tester** Parsippany NJ / Summer 1999
Developed, enhanced, executed, and documented test procedures for RAM software used to increase external customer accessibility to company databases. RAM is the client interface running on the customers machines allowing access to authorized Dun & Bradstreet databases.

ACADEMIC SERVICE

- Minorities@CC, Executive Board Secretary 2004 – 2005
- National Society of Black Engineers (NSBE), Co-Advisor of the Westlake High School NSBE Jr. Chapter Fall 2005
- Mentoring for Success Mentor, Mentor at Renfroe Middle School (3 students) Spring 2004
- Hands on Atlanta, Volunteer -Discovery Program, Reading and Math Mentor Fall 2004 – Spring 2005
- Journal of the Learning Sciences, Reviewer 2006
- American Educational Research Association (AERA) Reviewer 2007
- Increasing Minorities in Computing at Tech (IMC@T), Undergraduate Recruiter Spring 2004
- Learning Sciences Seminar coordinator Fall 2006, Fall 2007
- Transfer Reading group coordinator Summer 2004

PROFESSIONAL MEMBERSHIPS

- International Society of the Learning Sciences (ISLS)
- American Educational Research Association (AERA)
- Cognitive Science Society

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COMPUTER SKILLS

Programming Languages:	C, Java, Pascal, Visual Basic, SQL, HTML, and Assemble Language
Web Programming:	Java Script, Java Beans, JSP
Operating Systems:	DOS, OS/2, VM, Windows 3.1, 95, 98, NT, XP, Solaris, AIX, Linux
Network Skills:	Ethernet, LAN, Token Ring, WAN
Database:	Oracle 8i, DB2, ACCESS, MySQL

ACTIVITIES

Hands on Atlanta Volunteer	Project Open Hand Volunteer	Dean's List
Black Graduate Student Association (BGSA)	Fulton County Voter Registration Deputy (2004)	Inroads Alumni
Women @ CC	Minorities@CC	