Sixth International Conference of the Learning Sciences

CONFERENCE PROGRAM

CONFERENCE CHAIRS

Yasmin B. Kafai
William S. Sandoval
Noel Enyedy

University of California, Los Angeles
ICLS 2004 • STEERING

Doctoral Consortium
Annemarie Palincsar, University of Michigan
Mike Rose, University of California, Los Angeles
Tim Koschmann, Southern Illinois University
Cynthia Carter Ching, University of Illinois Urbana-Champaign

Workshops
Brian Foley, University of California, Irvine
Sherry Hsi, Exploratorium

International Relations
Iris Tabak, Ben-Gurion University
Celia Hoyles, University of London
Nicola Yelland, University of Melbourne

ICLS 2004 • ORGANIZATION

Registration
Susan Gautsch, University of Southern California

Technology
Peter Kovanic, UCLA

Web Design
Joshua Danish, UCLA
Yvonne de la Pena Ay, UCLA

Student Volunteers
Kelli A. Millwood, UCLA

ICLS 2004 • PROGRAM COMMITTEE

Brigid Barron, Stanford University
Phil Bell, University of Washington
Amy Bruckman, Georgia Institute of Technology
Angela Calabrese Barton, Columbia University
Allan Collins, Northwestern University
Kevin Crowley, University of Pittsburgh
Elizabeth A. Davis, University of Michigan
Chris Dede, Harvard University
Pierre Dillenbourg, Swiss Federal Institute of Technology
Daniel Edelson, Northwestern University
Barry Fishman, University of Michigan
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Rogers Hall, Vanderbilt University
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Margaret Honey, EDC
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Janet Kolodner, Georgia Institute of Technology
Joe Krajcik, University of Michigan
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Judit Moschkovich, UC Santa Cruz
Mitchell Nathan, University of Colorado
Roy Pea, Stanford University
Nichole Pinkard, University of Chicago
Joseph Polman, University of Missouri, St. Louis
Mimi Recker, Utah State University
Mitchel Resnick, Massachusetts Institute of Technology
Jeremy Roschelle, SRI International
Andee Rubin, TERC
Alan Schoenfeld, UC Berkeley
Daniel Schwartz, Stanford University
Bruce Sherin, Northwestern University
Miriam Sherin, Northwestern University
Reed Stevens, University of Washington
Nancy Butler Songer, University of Michigan
Gerry Stahl, Drexel University
Susan Williams, University of Texas
Volker Wulf, University of Siegen
Pre–Conference Program

TUESDAY • JUNE 22
Morning

DOUBLETREE  8:00
Shuttle Buses leave from Hotel Reception

UCLA  9:00 – 17:00

Moore Hall 3340  DOCTORAL CONSORTIUM
Annemarie Palincsar, University of Michigan
Mike Rose, UCLA
Tim Koschmann, University of Southern Illinois
Cynthia C. Ching, University of Illinois, Urbana-Champaign

Moore Hall 3320  JUNIOR FACULTY FELLOWS • Video Case Analysis
Rogers Hall, Vanderbilt University
Frederick Erickson, UCLA

Moore Hall 3030  WORKSHOP 1 • Community-Based Learning Workshop:
Explorations into Theoretical Groundings, Empirical Findings, and Computer Support
Ralf Klamme, RWTH Aachen
Markus Rohde, Universität Bonn
Gerry Stahl, Drexel University
Volker Wulf, Universität Siegen

Moore Hall 2120  WORKSHOP 2 • What’s Next for Research on Teaching and Learning with Connected, Handheld Devices?
Jeremy Roschelle, SRI International
Roy Pea, Stanford University
Valerie Crawford, SRI International
Pre–Conference Program

TUESDAY • JUNE 22
Afternoon

DOUBLETREE
12:30
Shuttle Bus leaves from Hotel Reception

UCLA
13:30 – 17:00

Moore Hall 3034
WORKSHOP 3 • Collaboration Models for Embracing Diversity: Technology-Supported Science Learning

Christopher Hoadley, Pennsylvania State University
Yael Kali, Technion
Tun Nyien, North Carolina Central University
Michelle Williams, UC Berkeley
Marcia Linn, UC Berkeley

UCLA
17:00
Shuttle Buses leave from Moore Hall

21:15
Shuttle Bus leaves from Moore Hall
Pre–Conference Program

WEDNESDAY • JUNE 23
Morning

DOUBLETREE 8:00
Shuttle Buses leave from Hotel Reception

UCLA 9:00 – 12:00

Moore Hall 3340 DOCTORAL CONSORTIUM
Annemarie Palincsar, University of Michigan
Mike Rose, UCLA
Tim Koschmann, University of Southern Illinois
Cynthia C. Ching, University of Illinois, Urbana-Champaign

Moore Hall 3320 JUNIOR FACULTY FELLOWS • HLM Approaches
Michael Seltzer, UCLA

Moore Hall 3120 WORKSHOP 4 • Conducting Learning Sciences Research with Emerging NASA e-Education Advanced Technology Applications
Steven McGee, Jesuit Wheeling University
Debbie Reese, Jesuit Wheeling University

Moore Hall 2120 WORKSHOP 5 • Conceptualization of NSF-Support of Research in the Learning Sciences
John Cherniavsky, National Science Foundation
Barbara Olds, National Science Foundation
Eamonn Kelly, George <Mason University
Barry Sloane, National Science Foundation

Moore Hall 3034 WORKSHOP 6 • Higher Education Seeking Learning Science Researchers: New Collaborations, Domains and Possibilities
Andrew Thomas, University of Southern California
Tu Tran, University of Southern California
Susan Gautsch, University of Southern California
John Silvester, University of Southern California

UCLA 12:00
Shuttle Buses leave from Moore Hall
ICLS 2004 Conference Program

WEDNESDAY • JUNE 23
Afternoon

DOUBLETREE 9:00 – 17:00
Foyer
REGISTRATION

13:00 – 13:30
Carousel
CONFERENCE OPENING
Conference Chairs – 6th ICLS
Yasmin B. Kafai, UCLA
William Sandoval, UCLA
Noel Enyedy, UCLA

Dean – Graduate School of Education & Information Studies
Aimée Dorr, UCLA

President – International Society of the Learning Sciences
Pierre Dillenbourg, École Polytechnique Fédéral de Lausanne

13:30 – 15:00
Carousel
SOCIAL POLICY AND DIVERSITY
Inequality, Stratification, and the Struggle for Just Schooling

Jeannie Oakes, UCLA

15:00 – 15:30
Foyer
COFFEE & COOKIES

15:30 – 17:00
Carousel A
PAPER 1 • Argumentation, Explanations, and Epistemology
Chair: Michael Barnett, Boston College

Teacher Practices that Support Students’ Construction of Scientific Explanations in Middle School Classrooms
David J. Lizotte, Katherine L. McNeill & Joseph Krajcik
University of Michigan

Goal Instructions in Computer-Supported Collaborative Argumentation: Can You Find a Reason?
E. Michael Nussbaum, University of Nevada
Leveraging Epistemological Diversity through Computer-based Argumentation in the Domain of Probability
Dor Abrahamson, Matthew W. Berland, R. Benjamin Shapiro, Joshua W. Unterman & Uri J. Wilensky
Northwestern University

Epistemic Frames and Islands of Expertise: Learning from Infusion Experiences
David Williamson Shaffer, University of Wisconsin-Madison

Carousel B

**SYMPOSIUM 1 • Cracking the Nut – But Which Nutcracker to Use? Diversity in Approaches to Analyzing Collaborative Processes in Technology-Supported Settings**
Chairs: Nikol Rummel & Hans Spada, University of Freiburg

An Emergent Methodology for Examining “Collaborative Space” in Educational Technology Environments
Cynthia Carter Ching, University of Illinois at Urbana-Champaign
X. Christine Wang, SUNY at Buffalo

Employing Quantitative and Qualitative Methods to Analyze Collaborative Process in a Computer-Mediated Setting at Three Levels
Hans Spada & Nikol Rummel, University of Freiburg

From Coding and Counting to Exploring and Understanding: Methodological Experiences in Analyzing Collaborative Interactions with Shared Representations
Dan Suthers, University of Hawai’i

Assessing Quality Features of Online Contributions: Bringing Microanalysis of Written Texts Together With Participants’ Subjective Perceptions
Rainer Bromme, Regina Jucks & Anne Runde, University of Münster

It Is More Than Just One Nut to Crack: A Multidimensional Approach to Analyzing Collaborative Knowledge Construction in Computer-Supported Learning Environments
Frank Fischer & Armin Weinberger, University of Tübingen
Heinz Mandl, University of Munich

Discussant: Pierre Dillenbourg, École Polytechnique Fédéral de Lausanne

Carousel C

**PAPER 2 • Studies of Professional Practice**
Chair: April Luehmann, University of Rochester

Cognitive Partnerships on the Bench Tops
Wendy C. Newstetter, Elke Kurz-Milcke & Nancy J. Nersessian
Georgia Institute of Technology
How a Creative "System" Learns: The Distributed Activity of Choreography
Janice E. Fournier, University of Washington

Seeing Nacirema: How Students and Professors Interpret Ethnographic Film
Eric Karl Chambers & Reed Stevens, University of Washington

Marquee I
PAPER 3 • Mathematics Instruction and Student Understanding
Chair: Daniel Battey, UCLA

Learning to Distinguish Between Representations of Data: A Cognitive Tutor That Uses Contrasting Cases

The Impact of Example Comparisons on Schema Acquisition: Do Learners Really Need Multiple Examples?
Katharina Scheiter, Peter Gerjets & Julia Schuh, University of Tübingen

Diverse Settings for Learning and Teaching: Preservice Teachers Learning Pedagogy Online and On-the-Fly
Jody S. Underwood, Educational Testing Service
Janet S. Bowers, San Diego State University

Marquee II
PAPER 4 • Organizational Learning
Chair: Susan Gautsch, University of Southern California

Authoring Branching Storylines for Training Applications
Andrew S. Gordon, University of Southern California

SCALE: Supporting Community Awareness, Learning, and Evolvement in an Organizational Learning Environment
Amy Soller, ITC-IRST, Renata Guizzardi, University of Twente
Alessandra Molani, University of Trento & Anna Perini, IRC-IRST

Organizational Learning In The Early Stage of Globalization
Le Zhong, Allan Collins & Jean Egmon, Northwestern University

19:00–21:00
NETWORKING FOR GRADUATE STUDENTS
Meeting in Foyer and Walk to Bowling Alley
ICLS 2004  THURSDAY • JUNE 24
Morning

7:00 – 8:30
Gallery Nord
CLOSED EDITORIAL BOARD MEETING
Journal of the Learning Sciences

8:00 – 17:00
Foyer
REGISTRATION

8:30 – 9:30
Carousel A
PAPER 5 • Computer Technology for At-risk Populations
Chair: Nicole Pinkard, University of Chicago

Anticipatory Cognitive Mapping of Unknown Spaces in Unknown Spaces
by People who are Blind Using a Virtual Learning Environment
David Mioduser & Orly Lahav, Tel Aviv University

GoGo Board: Augmenting Programmable Bricks for Economically
Challenged Audiences
Arnan Sipitakiat, MIT Media Laboratory
Paulo Blikstein, Northwestern University
David P. Cavallo, MIT Media Laboratory

Climbing to Understanding: Lessons from an Experimental Learning
Environment for Adjudicated Youth
David Cavallo, Seymour Papert & Gary Stager
MIT Media Laboratory

Carousel B
PAPER 6 • Computer Tools for Collaboration, Learning, and
Instruction
Chair: Christine Wang, SUNY at Buffalo

Can Students Collaboratively Use Hypermedia to Learn about Science?
The Dynamics of Self- and Other-regulatory Processes in the Classroom
Roger Azevedo, Fielding I. Winters & Daniel C. Moos,
University of Maryland

Implications of Computer-Based Projects in Electronics on Fostering
Independent Learning, Creativity and Teamwork
Moshe Barak, Ben-Gurion University of the Negev

Diverse Descriptions of Experimental Practice as Supports for Learning
Michael J. Ford, University of Pittsburgh
Technology-Supported Systemic Reform: An Initial Evaluation and Reassessment
Daniel D. Suthers, Violet H. Harada, William E. J. Doane, Joyce Yukawa, Bruce Harris & Viil Lid, University of Hawai‘i at Manoa

Carousel C

SYMPOSIUM 2 • Developing Historical Thinking Practices through Technology-Supported Inquiry

Digital Neighborhood Histories
Joseph L. Polman & Laura Westhoff, University of Missouri-St. Louis

Tracking Canada’s Past
D. Kevin O’Neill, Elahe Sohbat & Mahboubeh Asgari, Simon Fraser University

Facilitating Multiple Perspectives to Promote Historical Argumentation Skills in a Multimedia Learning Environment
Namsoo Shin, University of Michigan
Steven McGee, Wheeling Jesuit University

Teaching the Teaching of History with Digital Resources: Possibilities and Limitations of an On-line Inquiry Project in a Methods Course
Josh Radinsky, University of Illinois at Chicago

Promoting Disciplinary-Sensitive Argumentation Across History and Science in the Elementary School Classroom
Philip Bell, University of Washington

Marquee

SYMPOSIUM 3 • People, Places, and Things: Multiple Perspectives on Learning Opportunities for Diverse Populations

Everyday Science and Other Antecedents to Scientific Meaning-Making for Bilingual Families in Informal Learning Settings Like Aquariums
Doris Ash, University of California, Santa Cruz

Case Studies of Successful Mathematics Teaching with Yup’ik Native Alaskan Children
Mary Betsy Brenner, University of California, Santa Barbara

“I went by twos, he went by ones:” Multiple Ways of Talking About Graphs
Judit N. Moschkovich, University of California, Santa Cruz

Diversity as Outcome of Education
Gordon Wells, University of California, Santa Cruz
10:00 – 10:30
Foyer
COFFEE & TEA BREAK

10:30 – 12:00
Carousel
THE CULTURAL LEARNING SCIENCES
Making Cultural Practices, Diversity, and Equity Central Concerns for the Learning Sciences
Chair: Noel Enyedy, UCLA

Carol Lee, Northwestern University
Kris Gutierrez, UCLA
Angela Calabrese Barton, Columbia University
Judy Moscovitch, UC Santa Cruz

12:00 – 13:30
LUNCH BREAK

Gallery Nord
CLOSED BOARD MEETING
International Society of the Learning Sciences

Marquee
LEARNING SCIENCES AT AERA
Discussion Meeting
Chair: Douglas Clark, Arizona State University

Thursday Afternoon

13:30 – 15:00
Carousel A
PAPER 7 • Culture and Learning
Chair: Carmen Martínez-Roldán, Arizona State University

Narrative and Identity: Constructing Oppositional Identities in Performance Communities
Erica Rosenfeld Halverson, Northwestern University

Understanding Collaborative Activity Systems: The Relation of Tools and Discourse in Mediating Learning
Cindy E. Hmelo-Silver & Ellina Chernobilsky, Rutgers University

Exploring the Effects of Learners’ Cultural And Social Histories on the Practices of Learning Scientists
Nichole Pinkard, University of Chicago
Socially Relevant Representations in Interfaces for Learning
Christopher M. Hoadley & Joshua A. Kirby, Pennsylvania State University

Carousel B

PAPER 8 • Motivation and Engagement in Students’ Learning
Chair: Nava Livne, University of New Mexico

The Interest-Driven Learning Design Framework: Motivating Learning through Usefulness
Daniel C. Edelson, Northwestern University
Diana M. Joseph, University of Chicago

Role, Goal, and Activity: A Framework for Characterizing Participation and Engagement in Project-Based Learning Environments
Virginia M. Pitts & Daniel C. Edelson, Northwestern University

Motivation to Read: Comparing Teachers’ Perceptions of Students’ Motivation with Students’ Self-Reported Motivation: A Pilot Study
Robert Rueda, Julie Au & Sunhee Choi, University of Southern California

Carousel C

PAPER 9 • Participation and Discourse
Chair: Cathy Angelillo, UC Santa Cruz

Learning to Participate in Disciplinary Discourses: What Happens When the Conversation Ends?
Lindsay L. Cornelius, University of Washington

Knowledge Sharing in Groups: Experimental Findings of How to Overcome a Social Dilemma
Ulrike Cress & Friedrich-Wilhelm Hesse, University of Tübingen

Strengthening Learning Communities by Promoting Social Skill Development
Samuel M. Kwon & Louis M. Gomez, Northwestern University

Managing Ideological and Pedagogical Dilemmas: Improvising a Balance between Discovery and Transmission in 2 K-1 Science Classrooms
A. Susan Jurow & Laura Creighton, University of Colorado at Boulder

Marquee

SYMPOSIUM 4 • Models of Learning and Theories of Practice for Informal Learning Environments
Chair: Sherry Hsi, The Exploratorium

Islands of Expertise: Following the Child Through Everyday, Informal, and Formal Learning Environments
Kevin Crowley, University of Pittsburgh

Interaction, Mediation and Intervention in Investigate
Heather King, Kings College London
Design-Based Research in Informal Education Settings
Coe Leta Finke, UC Berkeley

Learning that Transfers Across Multiple Settings: A Problem of Studying and Facilitating Nomadic Inquiry
Sherry Hsi, The Exploratorium

Discussant: Richard Duschl, Kings College London

15:00 – 15:30
Foyer
COFFEE & COOKIES

15:30 – 17:00
POSTER SESSIONS

Carousel
Collaborative Learning

How Does Adaptive Scaffolding Facilitate High School Students’ Ability to Regulate their Learning with Hypermedia?
Roger Azevedo, University of Maryland

“Remote Earthquakes”: Getting Serious about Authenticity in CSCL
Nelson Baloian & Henning Breuer, Universidad de Chile
Ulrich Hoppe, University Duisburg-Essen
Jose A. Pino, Universidad de Chile

A Reflective Analysis of Instructional Practice in an Online Environment
Matt DelMarcelle & Sharon Derry, University of Wisconsin

Information Infrastructures to Support Ambitious Instruction in Urban Schools: Bringing Diverse Perspectives to Bear on a Tough Problem
Diana Joseph & Nichole Pinkard, University of Chicago

The Effects of "Collaborative Discovery Learning with an Association Scheme" on the Acquirement of Scientific Literacy
Hiroko Kobayashi, University of Tokyo

Classroom Strategies for Simulation-Based Collaborative Inquiry Learning

Classroom Strategies for Simulation-Based Collaborative Inquiry Learning
Tom Murray, Larry Winship, Neil Stillings, Esther Shartar & Ayala Galton, Hampshire College

Challenge or Connect? The Discourse of Collaboration in an Online Course
Trena M. Paulus, University of Tennessee

Diversity in Virtual Math Teams
Gerry Stahl, Wesley Shumar & Stephen Weimar, Drexel University
Diversity Issues in Design and Learning

*Designing Pedagogical Agents to Address Diversity in Learning*
Amy L. Baylor, Florida State University

*Equity and the Development of Technological Fluency*
Brigid Barron, Jennifer Tackman, Caitlin Martin, Emma Mercier, Aditja Johri, Zanette Johnson, Susie Wise, Marie White, Sara McPhee & Peter Worth, Stanford University

*Is a Conversation with a Wall Really a Conversation? A Review of the Recent Mainstream Science Education Literature about Gender Issues in Science*
Thomas Higginbotham, Boston College

*Social and Technological Innovations: Entry into the Knowledge Society for Everyone*
Mary Lamon, University of Toronto
Carleen Andrews, Dr. Kearney Junior Secondary School
Marlene Scardamalia, University of Toronto

*The Community Practice of Teasing Among Latino Children*
Lucinda Pease-Alvarez & Cathy Angelillo, University of California, Santa Cruz

Marquee

Learning Applications & Tools

*My World: A Case Study in Adapting Scientists’ Tools for Learners*
Daniel C. Edelson, Northwestern University

*Designing an Online Learning Environment for New Elementary Science Teachers: Supports for Learning to Teach*
Elizabeth A. Davis, Julie Smithey & Debra Petish
University of Michigan

*Computer-Assisted Engineering for Children: a Pop-Up Design Application*
Susan Hendrix & Michael Eisenberg, University of Colorado at Boulder

*Searching for Steven Spielberg: Introducing iMovie to the High School English Classroom: A Closer Look at What Open-Ended Technology Project Designs Can Do to Promote Engaged Learning*
Claudia Hindo, Ken Rose & Louis M. Gomez, Northwestern University

*Using Handheld Technologies in High School Economics: A School-University Collaborative Design Project*
Steve Lonn & Rodney Williams, University of Michigan

*The Digital IdeaKeeper: Combining Digital Library Services with Support for Online Inquiry*
Chris Quintana & Meilan Zhang, University of Michigan

*Improving Personal Home Pages to Support Learning as Becoming and Belonging*
Jochen Rick & Mark Guzdial, Georgia Institute of Technology
From Text to Tool: Unpacking the Diffusion of a Learning Technology in Higher Education
Tom Satwicz & Reed Stevens, University of Washington

Berta’s Tower: Understanding Physics through Virtual Engineering
Gina Svarovsky & David Williamson Shaffer, University of Wisconsin-Madison

Game of the Moment: Constructed Social Practice in Young Children’s Game Playing
X. Christine Wang, SUNY at Buffalo

Sam Goes to School: Story Listening Systems in the Classroom
Colleen Kehoe, University of Illinois
Justine Cassell, Northwestern University
Susan Goldman, University of Illinois
James Dai & Ian Gouldstone, MIT Media Laboratory
Shaunna MacLeod & Traci O’Day, University of Illinois
Anna Pandolfo, Kimiko Ryokai & Austin Wang, MIT Media Laboratory

Using Museum Resources to Engage High School Students in Historical Thinking
Meilan Zhang, Robert B. Bain & Stephen Mucher, University of Michigan

Virtual Game Environments for Learning
A Model and a Game for Investigating, Designing and Teaching Collaborative Learning
César A. Collazos, Luis A. Guerrero & José A. Pino, Universidad de Chile
Gerry Stahl, Drexel University
Sergio F. Ochoa, Universidad de Chile

Getting Your Socks Wet: Augmented Reality Environmental Science
Eric Klopfer, Massachusetts Institute of Technology
Kurt Squire, University of Wisconsin-Madison

Effects of Age on Associating Virtual and Embodied Toys
Sandra Y. Okita, Stanford University

Using Coordination Classes to Interpret Conceptual Change in Astronomical Thinking
Brett E. Shelton & Reed Stevens, University of Washington

Robot Role Play: Tangible Programming and Role Play Program Execution for Kids
Jakob Tholander, Ylva Fernaeus & Jesper Holmberg
Stockholm University

DOCTORAL CONSORTIUM
Student Generated Analogies in Science: Analogy as Categorization Phenomenon
Leslie Atkins, University of Maryland
Cooperative Problem-Solving and Learning in Computer-Mediated Settings: The Role of Shared Pictorial and Textual Applications in Free and Restricted Communication
Miriam Bertholet, Universität Freiburg

Understanding the Social and Instructional Meaning of a Multimedia, Bilingual Instructional Tool for Educators of the Deaf
Elizabeth Digello, University of Illinois, Urbana Champaign

Designing for Participation: How Social and Environmental Factors Influence Educational Discussions
James Hudson, Georgia Institute of Technology

Designing, Playing, and Learning: Sustaining Student Engagement with a Constructionist Design Tool for Craft and Math
Kristin Kaster Lamberty, Georgia Institute of Technology

The Good Field Trip: How Student Epistemologies of Science and Art are Affected by Trips to Museums and Other Sites
Sandra Toro Martell, University of Washington

E-Design for a Learning Journey
Nerida McCredie, University of Technology Sydney

Exploring the Development of Case Application Skills in Middle School Project-Based Inquiry Classrooms
Jakita Owensby, Georgia Institute of Technology

Local vs. Global Networks: Network Analysis of a Multi-User Virtual Environment
Kirk Job-Sluder, Indiana University

**DOUBLETREE**

17:00
**Buses start leaving from Hotel Foyer**

17:30 – 20:30
**UCLA CONFERENCE DINNER RECEPTION**

**UCLA**

20:30
**Buses start leaving from Moore Hall**
ICLS 2004  FRIDAY • JUNE 25
Morning

7:00 – 8:30
Gallery Nord  CLOSED EDITORIAL BOARD MEETING
Computer Support for Collaborative Learning

8:00 – 17:00
Foyer  REGISTRATION

8:30 – 10:30
Carousel A  PAPER 10 • Project-based Science Inquiry
Chair: Krista Glazewski, Purdue University

How Should Learning Be Structured in Elementary Science Instruction?: Investigating the Interplay of 1st- and 2nd-hand Investigations in Inquiry about Motion
S. J. Magnusson, A. S. Palincsar, S. Hapgood & A. Lomangino, University of Michigan

Case Application Suite: Scaffolding Use of Expert Cases in Middle-School Project-Based Inquiry Classrooms
Jakita N. Owensby & Janet L. Kolodner, Georgia Institute of Technology

Contextualizing Instruction in Project-Based Science: Activating Students’ Prior Knowledge and Experiences to Support Learning
Ann E. Rivet, Columbia University
Joseph S. Krajcik, University of Michigan

Using "Rules of Thumb" Practices to Enhance Conceptual Understanding and Scientific Reasoning in Project-Based Inquiry Classrooms
Michael T. Ryan & Janet L. Kolodner, Georgia Institute of Technology

Carousel B  SYMPOSIUM 5 • Design Theories of Interest, Motivation, and Engagement for the Learning Sciences
Chair: Daniel T. Hickey, University of Georgia

An Initial Contribution to the Development of a Design Theory of Mathematical Interest: The Case of Statistical Data Analysis
Paul Cobb & Lynn Hodge, Vanderbilt University

Learning in Informal and School-based Settings: A Multi-Context View of the Development of Interest
Brigid Barron, Stanford University
Designing Learning Environments to Support Engaged Participation in Domain Knowledge Practices  
Daniel T. Hickey, University of Georgia

What Does It Mean to be Interested in a Practice?  
Flávio S. Azevedo, University of California, Berkeley

Making Motivation-Centered Design Practical: A Tool for Analyzing and Guiding Design  
Diana Joseph, University of Chicago  
Daniel Edelson, Northwestern University

Discussants: Allan Collins, Northwestern University  
Ann Renninger, Swarthmore College

Carousel C  
PAPER 11 • Research Strategies for the Learning Sciences
Chair: Orly Lahav, University of Wisconsin-Madison

The Video Analyst’s Manifesto (or The Implications of Garfinkel’s Policies for the Development of a Program of Video Analytic Research within the Learning Sciences)  
Timothy Koschmann & Alan Zemel, Southern Illinois University

A Reform-based Framework for Observing Teaching  
Rebecca Schneider, University of Toledo  
Joseph Krajcik & Phyllis Blumenfeld, University of Michigan

Outline of a Pattern-Oriented Research Strategy for Complex Learning Scenarios  
Christoph Richter & Heidrun Allert, University of Hanover

Marquee I  
PAPER 12 • Reading and Listening Comprehension
Chair: Carmen Martínez-Roldán, Arizona State University

Self-explaining Science Texts: Strategies, Knowledge and Reading Skill  
Rachel Best, Yasuhiro Ozuru & Danielle S. McNamara, University of Memphis

World Knowledge Driving Young Readers’ Comprehension Difficulties  
Danielle S. McNamara, Randy G. Floyd, Rachel Best & Max Louwerse, University of Memphis

Learning from Lectures for Comprehension  
Naomi Miyake & Hajime Shirouzu, Chukyo University

Supporting Middle School Students Use Nonlinear Science Texts in an Inquiry Classroom  
Agnes Stylianou & Sadhana Puntambekar, University of Connecticut
Marquee II  
**PAPER 13 • Teacher Communication Styles and Student Learning**  
Chair: Susan Jurow, University of Colorado at Boulder

*What Makes Teaching Special?*  
Victor R. Lee & Bruce L. Sherin, Northwestern University

*The Effects of Teacher Social Presence on Student Satisfaction, Engagement, and Learning*  
Alyssa Wise, Juyu Chang, Thomas Duffy & Rodrigo del Valle, Indiana University

*The Role of Gesture in Instructional Communication: Evidence from an Early Algebra Lesson*  
Martha Wagner Alibali, University of Wisconsin-Madison  
Mitchell J. Nathan, University of Colorado

10:00 – 10:30  
**COFFEE & TEA BREAK**

Carousel  
10:30 – 12:00  
**CULTURE, LEARNING AND IDENTITY**  
Taking Culture Seriously in the Study of Learning and Development  
Na’ilah Nasir, Stanford University

12:00 – 13:30  
**LUNCH BREAK**

Marquee  
**OPEN BUSINESS MEETING**  
International Society of the Learning Sciences

**Friday Afternoon**

13:30 – 15:00  
**PAPER 14 • Representations and Learning**  
Chair: Randi Engle, University of Pittsburgh

*Cultural Mathematics’ in the Oksapmin Curriculum: Continuities and Discontinuities*  
Indigo Esmonde & Geoffrey B. Saxe, University of California, Berkeley
Of Grids and Jars: A Comparative Analysis of Representational Infrastructure and Learning Opportunities in Middle School and Professional Science
Rogers Hall, Rich Lehrer, Deb Lucas & Leona Schauble, Vanderbilt University

Supporting Students’ Reasoning with Inscriptions
Jose Luis Cortina, Qing Zhao, Paul Cobb & Kay McClain, Vanderbilt University

Carousel B

PAPER 15 • Science and Technology in Urban Schools
Chair: Ann Rivet, Columbia University

Standardized Test Outcomes of Urban Students Participating in Standards and Project Based Science Curricula
Robert Geier, Phyllis Blumenfeld, Ronald Marx, Joseph Krajcik, Barry Fishman & Elliot Soloway, University of Michigan

Improving Urban Youth’s Interest and Engagement through Field-Based Scientific Investigations
Michael Barnett, Eric Strauss & Camelia Rosca, Boston College
Heather Langford, Casey Trees Endowment Fund
Dawn Chavez & Leah Deni, Boston College
Charles Lord, Urban Ecology Institute

Using Educational Robotics to Engage Inner-City Students with Technology
Rachel Goldman, Columbia University
Amy Eguchi, University of Cambridge
Elizabeth Sklar, Columbia University

RoBallet: Exploring Learning through Expression in the Arts through Constructing in a Technologically Immersive Environment
David Cavallo, Aman Sipitakiat, Anindita Basu, Shaundra Bryant, Larissa Welti-Santos, John Maloney, Siyu Chen, Erik Asmussen, Cynthia Solomon & Edith Ackermann, MIT Media Laboratory

Carousel C

PAPER 16 • Understanding Students’ Scientific Reasoning
Chair: Brian Foley, California State University Northridge

What Constitutes Evidence of Complex Reasoning in Science?
Nancy B. Songer & Amelia W. Gotwals, University of Michigan

Student Generated Analogies in Science: Analogy as Categorization Phenomenon
Leslie J. Atkins, University of Maryland

Investigating Students’ Collaborative Scientific Reasoning during a Natural Selection Investigation
Eleni A. Kyza, Northwestern University
Marquee
SYMPOSIUM 6 • Programming Revisited — The Educational Value of Computer Programming
Chair: Mitchel Resnick, MIT Media Laboratory

*Scratch: Creating a “Programming Culture” at Community Technology Centers*
Mitchel Resnick, John Maloney & Brian Silverman, MIT Media Laboratory

*Boxer*
Andrea diSessa, University of California, Berkeley

*StarLogo TNG*
Eric Klopfer, MIT Teacher Education Program
Andrew Begel, University of California, Berkeley

*Real-Time Models and their Educational Significance*
Chris Hancock, Tertl Studios

15:00 – 15:30
Foyer
COFFEE & COOKIES

15:30 – 17:00
Marquee
PAPER 17 • Technology-Based Learning Environments
Chair: Kate Muir, University of Wyoming

*Help-seeking in Interactive Learning Environments: Effectiveness of Help and Learner-related Factors in a Dyadic Setting*
Tobias Bartholomé, Elmar Stahl & Rainer Bromme, University of Münster

*Fostering Reflection with Socratic Tutoring Software: Results of Using Inquiry Teaching Strategies with Web-Based HCI Techniques*
Baba Kofi A. Weusijana, Christopher K. Riesbeck & Joseph T. Walsh, Jr., Northwestern University

*A Microworld Learning for Psychology Experiments by Combining Real and Virtual Experiments*
Kazuha Miwa, Norio Ishii, Hitomi Saito & Ryuichi Nakaide, Nagoya University

*Electromagnetism Supercharged! Learning Physics with Simulation Games*
Kurt Squire, University of Wisconsin-Madison
Mike Barnett, Jamillah M. Grant & Thomas Higginbotham, Boston College
POSTER SESSIONS

Learning Environments

We built this city: Developing students' understanding of ecology through the professional practice of urban planning
Kelly L. Beckett & David Williamson Shaffer, University of Wisconsin-Madison

What is Your Science Classroom Environment Like?
Yaron Doppelt & Christian Schunn, University of Pittsburgh

Developing Understanding of Basic Astronomical Concepts By Using a Virtual Solar System
Elhanan Gazit, David Chen & Yoav Yair, Tel-Aviv University

Who has Why-Pox: A case study of informal science education on the net
Brian J. Foley, University of California, Irvine
Deborah La Torre, University of California, Los Angeles

Tools for Open Interpretation: using novel, non-desktop computing to support multiple perspectives in children's historical understanding
Tony Hall, Liam Bannon, Luigina Ciolfi, Kieran Ferris & Paul Gallagher, University of Limerick
Nora Hickey, The Hunt Museum
Anders Hedman, Royal Institute of Technology

Audience in Computer Learning: A Constructionist Interpretation
Gillian R. Hayes, Anne Marie Piper, Bob Amar, Korin J. Bevis, Wendy Newstetter & Amy S. Bruckman, Georgia Institute of Technology

Students' Interest for and Work with Applet-Enhanced Word Problems

Medium-Based Design: Supporting Bricoleur Designers
Jochen Rick & K.K. Lamberty, Georgia Institute of Technology

Automated Content Assessment Tools for e-Learning Environments
Lynn A. Streeter & Noelle LaVoie, Knowledge Analysis Technologies
Charles Krupnick, US Army War College
Joseph Psotka, US Army Research Institute

A Case Study of a Family's Digital Technology Use
Heather Toomey Zimmerman, University of Washington

Student Reasoning

Personally-Seeded Discussions to Scaffold Online Argumentation
Douglas B. Clark, Arizona State University

Who is to blame? The Impact of Views of Causal Agency on Reasoning and Decision Making
Maria Carolina DaCosta & Clark A. Chinn, Rutgers University

22 • Friday
Numerically Driven Inferencing about Abortion: Estimation and Rate Feedback’s Diverse Effects on Personal Policies and Justifications
Jennifer García de Osuna, Michael Ranney, Janek Nelson & Laura Germine, University of California, Berkeley

Creativity Education Centered on Reflective Activities
Norio Ishii & Kazuhisa Miwa, Nagoya University

Scaffolding Causal Reasoning
David Jonassen, Woei Hung, Johannes Strobel, Matthew Schmidt & Moon-Heum Cho, University of Missouri

Historical Reasoning Reconceptualized: A Case Study
Johannes Strobel, University of Missouri-Columbia

Inquiry Practices as Subsystems: Characterizing Important Elements of Reasoning
Carrie T. Tzou & Brian J. Reiser, Northwestern University

Student Understanding of Complex Systems

Milo and J-Mole: Computers as Interpretive Agents to Improve Symbolic Understanding
Kristen P. Blair & Daniel L. Schwartz, Stanford University

The Impact of Spurious Correlations on Students’ Problem-Solving

Understanding What’s Hard in Learning about Complex Systems
Elizabeth S. Charles, Georgia Institute of Technology
Sylvia T. d’Apollonia, Dawson College

Learning from Category-Avoiding Instructional Examples Reduces Cognitive Load and Fosters Cognitive Skill Acquisition
Peter Gerjets, Knowledge Media Research Center
Katharina Scheiter, University of Tübingen
Richard Catrambone, Georgia Institute of Technology

A Multi-Level/Multi-Type Model for Design-Based Alignment of Instruction, Assessment, and Testing
Daniel T. Hickey & Steven J. Zuiker, University of Georgia
Steven McGee, Wheeling Jesuit University

A Breath of Fresh Air: Alternative Approaches to Learning About Complex Systems
Surabhi Marathe, Lei Liu & Cindy E. Hmelo-Silver, Rutgers University

Coevolution of Symbolic and Concrete Dimensions of Understanding
Taylor Martin, University of Texas
Teacher Development

Supporting the Scaling of Innovations: Guiding Teacher Adaptation of Materials by Making Implicit Structures Explicit
Hsien-Ta Lin & Barry J. Fishman, University of Michigan

Understanding Teachers’ Conceptual and Pedagogical Knowledge of Probability
Yan Liu, Vanderbilt University

Preparing Elementary Education Teachers To Teach Science In Diverse Environments
Gail R. Luera & Charlotte A. Otto, University of Michigan

The Benefits and Challenges of Learning from Contrasting Video Cases
Anandi Nagarajan, Cindy Hmelo-Silver & Ellina Chernobilsky, Rutgers University

Towards Systemic Professional Development: Teachers as e-Designers
Lachlan Forsyth, Gillian Mulholland & Lynette Schaverien, University of Technology, Sydney

Preparing Tomorrow’s Teachers to Use Technology: Analysis of Pre-service Elementary and Middle School Teacher’s Interactions With Computer Modeling and Simulation Tools
Christina Schwarz, Jason Meyer & Ajay Sharma, Michigan State University

Preservice Elementary Science Teachers’ Identity Development: Identifying with Images of Inquiry
Julie Smithey & Elizabeth A. Davis, University of Michigan

Negotiating the Meaning of Representations in the Mathematics Classroom
Jennifer A. Tackman & Shelley V. Goldman, Stanford University

Insights Into the Complexity of Designing for Professional Development Networks in Educational Technologies: Tensions Between Structure and Agency
Susan Yoon, Eric Klopfer, Ginger Richardson & James Taylor, Massachusetts Institute of Technology

DOUBLETREE 17:00
Buses leave from Hotel Foyer

GETTY VISIT

GETTY CENTER 20:30
Buses leave from Getty Center
ICLS 2004  SATURDAY • JUNE 26
Morning

8:30 – 10:00

Carousel A  PAPER 18 • Multi-User Online Environments
Chair: Douglas Clark, Arizona State University

Passive Forum Behaviors (Lurking): A Community Perspective
Fei-ching Chen, National Central University

Learning in Massively Multiplayer Online Games
Constance A. Steinkuehler, University of Wisconsin-Madison

Replaying History: Engaging Urban Underserved Students in Learning World History Through Computer Simulation Games
Kurt Squire, University of Wisconsin-Madison
Sasha Barab, Indiana University

Design-based Research Strategies for Studying Situated Learning and Knowledge Transfer in a Multi-user Virtual Environment
Chris Dede, Brian Nelson, Diane Jass Ketelhut, Jody Clarke & Cassie Bowman, Harvard University

Carousel B  PAPER 19 • Student Inquiry and Collaboration with Handheld Technology
Chair: Noel Enyedy, UCLA

Emerging Social Engineering in the Wireless Classroom
Shelley Goldman, Roy Pea & Heidy Maldonado, Stanford University

Meeting Teachers in the Middle: Designing Handheld Software to Improve Student Questioning
William R. Penuel, Louise Yarnall, Melissa Koch & Jeremy Roschelle, SRI International

Leveraging Handhelds to Increase Student Learning: Engaging Middle School Students with the Mathematics of Change
Philip Vahey, SRI International
Deborah Tatar, Virginia Tech
Jeremy Roschelle, SRI International
Carousel C  PAPER 20 • Teacher Education, Curriculum Development & Administration  
Chair: Iris Tabak, Ben-Gurion University

Representing a Problem Space: Towards a Deeper Understanding of the Practice of Instructional Leadership  
Lawrence D. Brenninkmeyer, Bruce L. Sherin & James P. Spillane, Northwestern University

The Best Made Plans of Mice and Curriculum Planners: Embracing Diversity in Teacher Needs and Planning For It  
Barbara Burks Fasse, Georgia Institute of Technology

Professional Development and Teacher Change: A Longitudinal Investigation of Teacher Generative Growth  
Chrystalla Mouza, University of Delaware

Learning behind the Scenes: Development of Mentors through their Participation in Design Research  
Jun Oshima, Shizuoka University  
Ritsuko Oshima, Chukyo University  
Taku Ishiyama, Shizuoka University

Marquee  SYMPOSIUM 7 • Plumbing the Foundations of Knowledge Building  
Chair: Timothy Koschmann, Southern Illinois University

Carl Bereiter, Ontario Institute for Studies in Education  
Timothy Koschmann, Southern Illinois University  
Bertram Bruce, University of Illinois, Urbana-Champaign  
Eamonn Kelly, National Science Foundation

Foyer  COFFEE & TEA

Carousel  10:30 – 12:00  DEFINING THE SCIENCE IN THE LEARNING SCIENCES  
Chair: William Sandoval, UCLA

Sasha Barab, Indiana University  
Paul Cobb, Vanderbilt University  
Marcia Linn, University of California, Berkeley  
Nora Sabelli, SRI International  
Michael Seltzer, University of California, Los Angeles

Carousel  12:00 – 12:30  CONFERENCE CLOSING
NOTES