EMBODIED INTERACTION

How do people organize their body movement and talk when they interact with one another in the material world? How do they coordinate linguistic structures with bodily resources (such as gaze and gesture) to bring about coherent and intelligible courses of action? How are physical settings, artifacts, technologies, and non-linguistic sign-systems implicated in social interaction and shared cognition? This volume brings together advanced work by leading international scholars who share video-based research methods that integrate semiotic, linguistic, sociological, anthropological, and cognitive science perspectives with detailed, microanalytic observations. Collectively they provide a coherent framework for analyzing the production of meaning and the organization of social interaction in the complex and heterogeneous settings characteristic of modern life, ranging from ordinary and bilingual conversation to family interaction, and from daycare centers to work settings such as airplanes, clinics, and architects' offices, and to activities such as auctions and musical performances. Several chapters investigate how participants with communicative impairments (aphasia, blindness, deafness) creatively build meaning with others. Embodied Interaction is indispensable for anyone interested in the study of language and social interaction. This volume will be a point of reference for future research on multimodality in human communication and action.

Jürgen Streeck is Associate Professor of Communication Studies, Anthropology, and Germanic Studies at the University of Texas at Austin and a Senior Fellow at Freiburg Institute for Advanced Studies (FRIAS). He is interested in the coordination of linguistic structure, gesture, and other communicative modalities; the phenomenology and philosophical anthropology of the body; the relationship between embodiment and emplacement; and the bodily foundations of cognition, language, and communication. His publications include Social Order in Child Communication, Children's World and Children's Language (with J. Cook-Gumperz and W. Corsaro), Gesturecraft: The Manufacture of Meaning, and New Adventures in Language and Interaction.

Charles Goodwin is Professor of Applied Linguistics at the University of California, Los Angeles (UCLA). His interests include video analysis of talk-in-interaction; grammar in context; cognition in the lived social world; gesture, gaze, and embodiment as interactively organized social practices; aphasia in discourse; language in the professions; and the ethnography of science. His publications include Conversational Organization: Interaction between Speakers and Hearers, Rethinking Context: Language as an Interactive Phenomenon (co-edited with Alessandro Duranti), Conversation and Brain Damage, and Il Senso del Vedere: Pratiche Sociali della Significazione.

Curtis LeBaron is Associate Professor of Organizational Leadership and Strategy at Brigham Young University. He teaches graduate and executive education courses on leadership, human resources, and qualitative research methods. His research interests include interaction and identity, knowledge and innovation, and organizational strategy as practice. His research has been recognized by the National Institute of Health (Bethesda, Maryland) and the National Communication Association (Language and Social Interaction [LSI] division). Funding for research has come from a variety of sources, including the National Science Foundation, a Warren Jones Fellowship (Marriott School of Management), and an Erasmus Mundus Scholarship (European Union). He has published in journals such as Journal of Communication, Research on Language and Social Interaction, Human Studies, Cognition and Instruction, and Computer Supported Collaborative Work. He is also the co-editor of Studies in Language and Social Interaction (with Phillip Glenn and Jenny Mandelbaum).
LEARNING IN DOING: SOCIAL, COGNITIVE, AND COMPUTATIONAL PERSPECTIVES

SERIES EDITOR EMERITUS
John Seely Brown, Xerox Palo Alto Research Center

GENERAL EDITORS
Roy Pea, Professor of Education and the Learning Sciences and Director, Stanford Center for Innovations in Learning, Stanford University
Christian Heath, The Management Centre, King's College, London
Lucy A. Suchman, Centre for Science Studies and Department of Sociology, Lancaster University, UK

SERIES FOREWORD
This series for Cambridge University Press is widely known as an international forum for studies of situated learning and cognition. Innovative contributions are being made by anthropology; by cognitive, developmental, and cultural psychology; by computer science; by education; and by social theory. These contributions are providing the basis for new ways of understanding the social, historical, and contextual nature of learning, thinking, and practice that emerges from human activity. The empirical settings of these research inquiries range from the classroom to the workplace, to the high-technology office, and to learning in the streets and in other communities of practice. The situated nature of learning and remembering through activity is a central fact. It may appear obvious that human minds develop in social situations and extend their sphere of activity and communicative competencies. But cognitive theories of knowledge representation and learning alone have not provided sufficient insight into these relationships. This series was born of the conviction that new exciting interdisciplinary syntheses are underway as scholars and practitioners from diverse fields seek to develop theory and empirical investigations adequate for characterizing the complex relations of social and mental life, and for understanding successful learning wherever it occurs. The series invites contributions that advance our understanding of these seminal issues.

Roy Pea
Christian Heath
Lucy Suchman

TITLES IN THE SERIES
The Construction Zone: Working for Cognitive Change in School
Denis Newman, Peg Griffin, and Michael Cole

Situated Learning: Legitimate Peripheral Participation
Jean Lave and Etienne Wenger

Street Mathematics and School Mathematics
Terezinha Nunes, David William Carraher, and Analucia Dias Schliemann

Understanding Practice: Perspectives on Activity and Context
Seth Chaiklin and Jean Lave, Editors

Distributed Cognitions: Psychological and Educational Considerations
Gavriel Salomon, Editor

The Computer as Medium
Peter Bøgh Anderson, Berit Holmqvist, and Jens F. Jensen, Editors

Sociocultural Studies of Mind
James V. Wertsch, Pablo del Rio, and Amelia Alvarez, Editors

(Continued after the index)
EMBODIED INTERACTION

LANGUAGE AND BODY IN THE MATERIAL WORLD

Edited by

Jürgen Streeck, Charles Goodwin, and Curtis LeBaron
Contents

List of Figures and Tables .......................................................... page ix
Contributors. ........................................................................... xiii

1. Embodied Interaction in the Material World: An Introduction .............. 1
   Jürgen Streeck, Charles Goodwin, and Curtis LeBaron

I. FOUNDING CAPACITIES

2. Collaborative Construction of Multimodal Utterances. ..................... 29
   Edwin Hutchins and Saeko Nomura

3. Formal Structures of Practical Tasks: A Resource for Action
   in the Social Life of Very Young Children .................................. 44
   Gene H. Lerner, Don H. Zimmerman, and Mardi Kidwell

4. Elements of Formulation .......................................................... 59
   N. J. Enfield

5. The Changing Meanings of Things: Found Objects and Inscriptions
   in Social Interaction ................................................................ 67
   Jürgen Streeck

6. Choreographies of Attention: Multimodality in a Routine
   Family Activity. .................................................................... 79
   Eve Tulbert and Marjorie H. Goodwin

7. Some Functions of Speaker Head Nods ........................................ 93
   Hiromi Aoki

8. The Multimodal Mechanics of Collaborative Unit Construction
   in Japanese Conversation ..................................................... 106
   Shimako Iwasaki

II. TRANSFORMATIONAL ECLOGIES

   Children's Conduct in the Childcare Classroom .......................... 123
   Siri Mehus

10. Multilingual Multimodality: Communicative Difficulties and Their
    Solutions in Second-Language Use ......................................... 137
    Marianne Gullberg
CONTENTS

11. On the Use of Graphic Resources in Interaction by People with Communication Disorders ........................................ 152
   Ray Wilkinson, Steven Bloch, and Michael Clarke

12. Terra Incognita: Social Interaction among Blind Children ............ 169
   Sharon Avital and Jürgen Streeck

13. Contextures of Action ......................................................... 182
   Charles Goodwin

14. “A Full Inspiration Tray:” Multimodality across Real and Virtual Spaces .................................................. 194
   Elizabeth Keating and Chihio Sunakawa

III. PROFESSIONAL COMMUNITIES

15. The Organization of Concurrent Courses of Action in Surgical Demonstrations ........................................ 207
   Lorenza Mondada

16. Pursuing a Response: Prodding Recognition and Expertise within a Surgical Team ........................................ 227
   Alan Zemel, Timothy Koschmann, and Curtis LeBaron

17. Building Stories: The Embodied Narration of What Might Come to Pass .................................................. 243
   Keith M. Murphy

18. Embodied Arguments: Verbal Claims and Bodily Evidence ........ 254
   Julien C. Mirivel

19. Facilitating Tool Use in the Photography Studio ....................... 264
   Scott Phillabaum

20. Gesture and Institutional Interaction ...................................... 276
   Christian Heath and Paul Luff

21. Musical Spaces ............................................................... 289
   John B. Haviland

Index ............................................................... 305
# Figures and Tables

## FIGURES

2.1. The “approach to stall recovery” as it appears in the Flight Crew Operating Manual

2.2. The “departure stall” practice procedure as it appears in the simulator briefing slides

2.3. The 737NG trim wheel and stabilizer trim indicator as seen looking down from the vantage of the left pilot’s seat. Up on the page is forward in the airplane

3.1. Food staging area and meal service table

3.2. First appeal

3.3. Second appeal

3.4. No place for an appeal

3.5. An extended appeal

3.6. Expression of displeasure

3.7. Departing appeal

3.8. A nascent reprise

5.1. Antpöhler inspects competitor cookie

5.2. Antpöhler test-eats competitor cookie

5.3. Destrooper inspects competitor aluminum bag

5.4. Destrooper fondles competitor aluminum bag

5.5. Antpöhler discards aluminum bag

5.6. Destrooper rearranges aluminum bag

5.7. Antpöhler discards second aluminum bag

5.8. Destrooper rearranges second aluminum bag

5.9. Gestalt closure in the arranging of boxes and bags

5.10. Transformations of an aluminum bag

5.11. Antpöhler writes numbers

6.1. Sisters brushing teeth in a nested formation

6.2. Body alignments in toothbrushing call-to-action

6.3. Map of child’s journey through space for toothbrushing

8.1. A single utterance “But um:- ((I)) was interested in drug stuff, too,” consisting of segmented sub-unit components

8.2. Emergence of facial and body display as unit progresses

8.3. Display of speaker stance projects upcoming talk

8.4. The orchestration of individual and multiple modalities in unit construction

9.1. Karim reaches for Curtis’s bowl

9.2. Monica sits

9.3. Applause at Circle Time

9.4. “Up the water spout”
9.5. “Down came the rain” 129
9.6. Robert grasps and pulls the chair 129
9.7. Robert nudges Thomas into the chair 129
9.8. “Gently down the stream” 131
9.9. “Don’t forget to scream” 131
9.10. “All done” 132
9.11. “It’s someone else’s turn” 132
9.12. “Good job, Rebecca” 132

10.1. Native speaker of French to the left, Dutch speaker of L2 French to the right 140
10.2. Native speaker of French to the left, Dutch speaker of L2 French to the right 140
10.3. Dutch speaker of L2 French to the left, native speaker of French to the right 142
10.4. Native speaker of French to the left, Dutch speaker of L2 French to the right 143
10.5. French speaker of L2 Swedish to the left, native speaker of Swedish to the right 144
10.6. Dutch speaker of L2 French to the left, native speaker of French to the right 144

11.1. James (left) and Jill 155
11.2. Mary (left) and Stan 159
11.3. Jamal (right) and Colin 162

12.1. Ken and Sally in conversation 173
12.2. Ken and Sally adopt symmetrical postures 173
12.3. Ken makes an encouraging remark to Sally 173
12.4. Sally adopts matching posture in response 173
12.5. April rocking before the beginning of a music lesson 179
12.6. April jumps up and down during the music lesson 179
12.7. April calming herself by grasping her arm 179
12.14. Pointing to signify and clarify addressee 196
12.15. Using technology to expand gaze parameters 196
12.16. Coordinating activity in multiple spaces through language and the body 199
12.17. Head shift, voice, and referent 200
12.18. Machine perspective and virtual gaze shift plus human perspective and gaze shift 201
15.1. The tools manipulated by the participants 209
15.2. Hook approaches to the red dot, l. 1 210
15.3. ”là#”, l. 1 210
15.4. ”coag#”, l. 3 211
15.5. Hook goes away after coagulation, l. 5 211
15.6. Hook approaches 212
15.7. Hook tends the tissue 212
15.8. Hook coagulates 212
15.9. Hook dissects 212
15.10. Hook approaching (l. 2) 217
15.11. Hook and peanut in the dissection space (l. 2) 217
15.12. The coordinated positioning of hook and peanut (l. 5) 217
15.13. Series of coagulated points (l. 7–18) 217
15.14. Initial position of the camera (l. 3) 218
15.15. Zoom of the camera (l. 7–9) 218
16.1. Stenosis and anastomosis 229
16.2. Attending tapping the anastomosis 229
16.3. Attending’s hand on the anastomosis 230
16.4. Attending curls fingers down 230
FIGURES AND TABLES

16.5. Attending reaching up the arm 230
16.6. Attending moving down the arm 232
16.7. Attending's finger on the anastomosis 232
16.8. Resident constitutes the anastomosis 232
16.9. Attending places right hand on arm 232
16.10. Attending removes hands from arm 233
16.11. Attending returns both hands to arm 233
16.12. Attending places finger on anastomosis 233
16.13. Attending slides finger up the arm 233
16.15. Attending returns fingers to the anastomosis 234
16.16. Attending frames the anastomosis 234
16.17. Attending releases the site 234
16.18. Resident points to the anastomosis 234
16.19. Resident places finger on cephalic vein 234
16.20. Attending reclains the arm 235
16.21. Attending waves hand over the site 235
16.22. Attending sweeps up the arm 236
16.23. Resident points to cephalic vein 236
16.24. Attending taps the arm 236
16.25. Attending sweeps hand over cephalic vein 237
16.26. Attending sweeps along the arm 237
16.27. Attending sweeps over the site of fistula 238
16.28. Attending points to the stenosis 238
16.29. Attending brings finger to the anastomosis 238
16.30. Attending moves finger up the arm 238
16.31. Resident points to the arm 238
18.1. Direction of the surgeon's gestural movements during the examination 258
19.1. A sample contact print 266
19.2. Using the contact print 267
19.3. Comparing the contact print with negatives 268
19.4. The viewing board 268
19.5. "and this will become less (0.6) uh distracting maybe" 270
19.6. "see if her top teeth don't become (0.4) whiter" 270
19.7. Using the book as a viewing board 273
19.8. Using the book as a viewing board 273
21.1. Zinacantec musicians playing violin, harp, and guitar, seated 291
21.2. Zinacantec musicians in procession 291
21.3. String quartet 291
21.4. The jazz group 291
21.5. Bartok SQ #4, 5 movement, bars 360ff 295
21.6. Piano riff (other musicians prepare) 296
21.7. Piano glance (other musicians start) 296
21.8. Cornetist passes the solo to the alto sax 296
21.9. Saxophone player "walks" the solo back into the group 296
21.10. Cornet checks with glance 297
21.11. Cornet points with instrument 297
21.12. Opening piano chord and cornet riff 298
21.13. Marcus Miller signature bass 299
21.14. Mozart opening (first violin part only) 300
21.15. "Try..." 300
21.16. "Try upbow..." 300
21.17. "Very light on the upbow" 301
21.18. "Here..." 301
21.19. "Put your fingers anywhere" 301
21.20. "What that turned out to be" 301
TABLES

2.1. How the categories Lexical Affiliate and Co-expressive speech fail to label the space of semantic and temporal relations among semiotic resources

7.1. The distribution of speaker head nods among different patterns of participants’ gaze

7.2. The distribution of the two forms of speaker head nods

FIGURES AND TABLES

30

95

95
Contributors

Hiromi Aoki
University of Alberta

Sharon Avital
Interdisciplinary Center, Hertzelia

Steven Bloch
University College London

Michael Clarke
University College London

N. J. Enfield
Max Planck Institute for Psycholinguistics
and Radboud University, Nijmegen

Charles Goodwin
University of California, Los Angeles

Marjorie H. Goodwin
University of California, Los Angeles

Marianne Gullberg
Lund University

John B. Haviland
University of California, San Diego

Christian Heath
King's College London

Edwin Hutchins
University of California, San Diego

Shimako Iwasaki
Monash University

Elizabeth Keating
The University of Texas at Austin

Mardi Kidwell
University of New Hampshire

Timothy Koschmann
Southern Illinois University

Curtis LeBaron
Brigham Young University

Gene H. Lerner
University of California, Santa Barbara

Paul Luff
King's College London

Siri Mehus
University of Washington, Seattle

Julien C. Mirivel
University of Arkansas at Little Rock

Lorenza Mondada
Université de Lyon & ICAR Research Lab (CNRS)

Keith M. Murphy
University of California, Irvine

Saeko Nomura
Institute for Human Centered Design, Boston

Scott Philibraum
San José State University

Jürgen Streeck
The University of Texas at Austin

Chiho Sunakawa
The University of Texas at Austin

Eve Tulbert
University of California, Los Angeles

Ray Wilkinson
University of Manchester

Alan Zemel
University at Albany, SUNY

Don H. Zimmerman
University of California, Santa Barbara