

## **The Cambridge Handbook of Group Interaction Analysis**

This handbook provides a compendium of research methods that are essential for studying interaction and communication across the behavioral sciences. Focusing on coding of verbal and nonverbal behavior and interaction, the handbook is organized into five parts.

- Part I provides an introduction and historic overview of the field.
- Part II presents areas in which interaction analysis is used, such as relationship research, group research, and nonverbal research.
- Part III focuses on development, validation, and concrete application of interaction coding schemes.
- Part IV presents relevant data analysis methods and statistics.
- Part V contains systematic descriptions of established and novel coding schemes, which allows quick comparison across instruments.

Researchers can apply this methodology to their own interaction data and learn how to evaluate and select coding schemes and conduct interaction analysis. This is an essential reference for all who study communication in teams and groups

Elisabeth Brauner is Full Professor of Psychology at Brooklyn College and The Graduate Center, City University of New York. She is former Head of the PhD Program in Cognition, Brain, and Behavior at the Graduate Center, CUNY, and Director of two MA programs in Industrial and Organizational Psychology at Brooklyn College. Her research on team processes focuses on group interaction for the purpose of developing transactive memory, as well as on the development of research methods for applied psychological research.

Margarete Boos is Full Professor of Psychology and Head of the Department of Social and Communication Psychology at the Institute for Psychology, University of Göttingen. Her research focuses on group psychology, especially coordination and leadership in teams, computer-mediated

communication, and distributed teams, as well as on methods for interaction and communication analysis.

Michaela Kolbe is a member of the faculty at ETH Zurich and the Director of the Simulation Center for the University Hospital Zurich. She has been studying team processes for many years, with particular research interest in the social dynamics of “speaking up” across the authority gradient and across disciplines in health care. She publishes widely in psychological, health care, and simulation journals and books, and she is a member of the Editorial Board of *BMJ STEL* and Associate Editor of *Advances in Simulation*.

# The Cambridge Handbook of Group Interaction Analysis

Edited by

**Elisabeth Brauner**

*Brooklyn College and The Graduate Center, The City University of  
New York*

**Margarete Boos**

*Georg August-University of Göttingen, Faculty of Biology and  
Psychology, Georg Elias Müller-Institute for Psychology*

**Michaela Kolbe**

*University Hospital Zurich and ETH Zurich*



**CAMBRIDGE**  
UNIVERSITY PRESS

Cambridge University Press  
 978-1-107-11333-6 — The Cambridge Handbook of Group Interaction Analysis  
 Edited by Elisabeth Brauner, Margarete Boos, Michaela Kolbe  
 Frontmatter  
[More Information](#)

## CAMBRIDGE UNIVERSITY PRESS

University Printing House, Cambridge CB2 8BS, United Kingdom  
 One Liberty Plaza, 20th Floor, New York, NY 10006, USA  
 477 Williamstown Road, Port Melbourne, VIC 3207, Australia  
 314–321, 3rd Floor, Plot 3, Splendor Forum, Jasola District Centre,  
 New Delhi – 110025, India  
 79 Anson Road, #06–04/06, Singapore 079906

Cambridge University Press is part of the University of Cambridge.

It furthers the University's mission by disseminating knowledge in the pursuit of education, learning, and research at the highest international levels of excellence.

[www.cambridge.org](http://www.cambridge.org)  
 Information on this title: [www.cambridge.org/9781107113336](http://www.cambridge.org/9781107113336)  
 DOI:10.1017/9781316286302

© Cambridge University Press 2018

This publication is in copyright. Subject to statutory exception and to the provisions of relevant collective licensing agreements, no reproduction of any part may take place without the written permission of Cambridge University Press.

First published 2018

Printed in the United Kingdom by TJ International Ltd. Padstow Cornwall

*A catalogue record for this publication is available from the British Library.*

### *Library of Congress Cataloging-in-Publication Data*

Names: Brauner, Elisabeth, editor. | Boos, Margarete, editor. | Kolbe, Michaela, editor.  
 Title: The Cambridge handbook of group interaction analysis / edited by Elisabeth Brauner, Brooklyn College and The Graduate Center, The City University of New York, Margarete Boos, Georg August – University of Gottingen, Faculty of Biology and Psychology, Georg Elias Muller – Institute for Psychology, Michaela Kolbe, University Hospital Zurich and ETH Zurich.

Description: New York : Cambridge University Press, 2018. | Series: Cambridge handbooks in psychology | Includes bibliographical references and index.

Identifiers: LCCN 2018012352 | ISBN 9781107113336 (hardback)

Subjects: LCSH: Social interaction. | Communication.

Classification: LCC HM1111 .C36 2018 | DDC 302–dc23

LC record available at <https://lcn.loc.gov/2018012352>

ISBN 978-1-107-11333-6 Hardback

ISBN 978-1-107-53387-5 Paperback

Cambridge University Press has no responsibility for the persistence or accuracy of URLs for external or third-party internet websites referred to in this publication and does not guarantee that any content on such websites is, or will remain, accurate or appropriate.

Cambridge University Press

978-1-107-11333-6 — The Cambridge Handbook of Group Interaction Analysis

Edited by Elisabeth Brauner , Margarete Boos , Michaela Kolbe

Frontmatter

[More Information](#)

---

To the memory of

Renee A. Meyers

Cambridge University Press  
978-1-107-11333-6 — The Cambridge Handbook of Group Interaction Analysis  
Edited by Elisabeth Brauner , Margarete Boos , Michaela Kolbe  
Frontmatter  
[More Information](#)

---

Contents

<i>List of Figures</i>	<i>page</i>	xii
<i>List of Tables</i>		xv
<i>List of Contributors</i>		xviii
<i>Editors' Preface</i>		xxi
<i>Organization of This Handbook</i>		xxiv
<i>How to Work with This Handbook</i>		xxv
 <b>Part I Background and Theory</b>		 1
1 Interaction Analysis: An Introduction		
JOANN KEYTON		3
2 History of Group Interaction Research		
SIMONE KAUFFELD AND ANNIKA L. MEINECKE		20
 <b>Part II Application Areas of Interaction Analysis</b>		 43
3 Dyadic Interaction Analysis		
VALENTÍN ESCUDERO, MINSUN LEE, AND MYRNA L. FRIEDLANDER		45
4 Observing Group Interaction: The Benefits of Taking Group Dynamics Seriously		
MICHAELA KOLBE AND MARGARETE BOOS		68
5 Unpacking the Structures of Team Interaction Patterns		
ZHIKE LEI		86
6 Coding Nonverbal Behavior		
JUDEE K. BURGOON AND NORAH E. DUNBAR		104
7 Behavioral Coding in Animals		
JOANNA M. SETCHELL		121
8 Beyond Coding Interaction: New Horizons in Interaction Analysis		
MICHAEL A. ROSEN, AARON S. DIETZ, AND SADAF KAZI		142

viii	Contents	
	<b>Part III Methodology and Procedures of Interaction Analysis</b>	163
9	Coding Interaction: A Technical Introduction ELISABETH BRAUNER	165
10	Rules for Coding Scheme Development FRANZISKA TSCHAN, JASMIN ZIMMERMANN, AND NORBERT K. SEMMER	191
11	Unitizing Verbal Interaction Data for Coding: Rules and Reliability NATASHA REED, YVONNE METZGER, MICHAELA KOLBE, SARAH ZOBEL, AND MARGARETE BOOS	208
12	Quality Control: Assessing Reliability and Validity JULIA C. SEELANDT	227
13	Software for Coding and Analyzing Interaction Processes MICHAEL GLÜER	245
	<b>Part IV Data Analysis and Data Presentation</b>	275
14	Coding and Counting: Frequency Analysis for Group Interaction Research OLIVER RACK, CARMEN ZAHN, AND MAGDALENA MATEESCU	277
15	Analysis of Interaction Sequences VICENÇ QUERA	295
16	Temporal Patterns in Interactions: T-Patterns and Their Detection with THEME™ MAGNUS S. MAGNUSSON	323
17	Interdependence in Small Group Discussion JOSEPH A. BONITO AND SARAH M. STAGGS	354
18	Coding and Analyzing Multiple Levels MARSHALL SCOTT POOLE	370
19	Introduction to Machine Learning: Teaching Computers to Code Group Interaction Data JOSEPH A. BONITO AND JOANN KEYTON	387
20	TINT: A Technique for Visualizing Team Processes JULIA KOCH, FRANK RITZ, CORNELIA KLEINDIENST, AND JONAS BRÜNGGER	405



	Contents	ix
<b>Part V Coding Schemes for Interaction Research</b>	419	
<b>General Group Process Systems</b>	421	
21 The Advanced Interaction Analysis for Teams (act4teams) Coding Scheme SIMONE KAUFFELD, NALE LEHMANN-WILLENBROCK, AND ANNIKA L. MEINECKE	422	
22 The Discussion Coding System (DCS) CARSTEN C. SCHERMULY	432	
23 Interaction Process Analysis (IPA) JOANN KEYTON	441	
24 TEMPO: A Time-Based System for Analysis of Group Interaction Process JANICE R. KELLY, MAAYAN DVIR, AND DANIELLE M. PARSONS	451	
<b>Argument, Conflict, and Negotiations</b>	459	
25 ARGUMENT: A Category System for Analyzing Argumentation in Group Discussions MARGARETE BOOS AND CHRISTINA SOMMER	460	
26 Group Working Relationships Coding System MARSHALL SCOTT POOLE	467	
27 Micro-Conflict Coding Scheme SUSANNAH B. F. PALETZ AND CHRISTIAN D. SCHUNN	472	
28 OFFER: Behaviorally Coding Indirect and Direct Information Exchange in Negotiations JEANNE BRETT, JINGJING YAO, AND ZHI-XUE ZHANG	483	
29 VTCS: Verbal Tactics Coding Scheme ALAN L. SILLARS	491	
<b>Coordination and Coherence</b>	501	
30 CoCo: A Category System for Coding Coherence in Conversations MARGARETE BOOS	502	
31 Co-ACT: A Framework for Observing Coordination Behavior in Acute Care Teams MICHAELA KOLBE	510	
32 SO-DIC-OR: Simultaneous Observation of Distractions and Communication in the Operating Room SANDRA KELLER AND FRANZISKA TSCHAN	518	

x	Contents	
	<b>Cognition and Metacognition</b>	527
33	CASoRL: Coding Scheme for the Analysis of Social Regulation of Learning CORNELIA SCHOOR	528
34	Coding Scheme for Group Creativity CHIA-YU KOU AND SARAH HARVEY	537
35	Analyzing Critical Thinking in Group Constellations: From Discourse Analysis to Analyzing Social Modes of Thinking MAREE J. DAVIES, KATHARINA KIEMER, AND ADAM DALGLEISH	547
36	Identifying Teacher and Student Contributions during Assessment Conversations: The Elevate Coding Scheme ERIN MARIE FURTAK AND KATHARINA KIEMER	556
37	Hidden Profile Discussion Coding: Tracing Synergy in Group Decisions J. LUKAS THÜRMER, FRANK WIEBER, THOMAS SCHULTZE, AND STEFAN SCHULZ-HARDT	565
38	TRAWIS: Coding Transactive Knowledge and Knowledge Exchange ELISABETH BRAUNER	575
	<b>Personality and Team Behavior</b>	583
39	The Behavior Analysis Coding System: An Applied, Real-time Approach for Measuring and Improving Interactive Skills SAMUEL FARLEY, ROSE EVISON, NEIL RACKHAM, ROD NICOLSON, AND JEREMY DAWSON	584
40	Groupness/Entitativity Observational Coding (GEOC): A Coding System to Assess Groupness or Entitativity in Groups JOSÉ NAVARRO AND ROCÍO MENESES	594
41	Assessing Group Interactions in Personality Psychology: The Münster Behavior Coding-System (M-BeCoSy) MARC GRÜNBERG, JANA MATTERN, KATHARINA GEUKES, ALBRECHT C. P. KÜFNER, AND MITJA D. BACK	602
	<b>Roles and Relationships</b>	612
42	BRRICS: Brief Romantic Relationship Interaction Coding Scheme MIKHILA N. WILDEY AND S. ALEXANDRA BURT	613

	Contents	xi
43 (Family) Relational Communication Control Coding System MYRNA L. FRIEDLANDER, VALENTÍN ESCUDERO, AND LAURIE HEATHERINGTON	622	
44 Verbal Response Modes Taxonomy WILLIAM B. STILES	630	
<i>Appendix</i>	639	
<i>Index</i>	651	

Figures

7.1	An adult female mandrill grooms an adult male at the Centre International de Recherches Médicales, Franceville, Gabon.	<i>page</i> 124
7.2	The scientific method, as applied to the study of animal interactions.	125
7.3	An adult male mandrill at the Centre International de Recherches Médicales, Franceville, Gabon, showing the “grin” face.	128
9.1	The effect of the research construct on decisions regarding interaction coding.	170
9.2	Three properties defining coding schemes.	171
9.3	Examples of coding techniques based on level of granularity of the observation and level of concreteness of the construct.	177
10.1	Overview of the coding scheme development process.	202
13.1	Screenshot of the INTERACT software by Mangold International GmbH.	256
13.2	Screenshot of the Observer XT software by Noldus Information Technology.	258
13.3	Screenshot of the Videograph software by Rolf Rimmele.	260
13.4	Screenshot of the Eudico Linguistic Annotator software by the Max Planck Institute for Psycholinguistics, Nijmegen, Netherlands.	262
13.5	Screenshot of the f4 software by Dr. Dresing & Pehl GmbH.	264
13.6	Screenshot of the MAXQDA software by VERBIE GmbH.	266
13.7	Screenshot of the ATLAS.ti software by Scientific Software Development GmbH.	268
13.8	Screenshot of the NVivo software by QSR International.	270
13.9	Decision tree for choosing software for interaction coding and analyzing.	271
14.1	Steps for frequency analysis.	281
14.2	Participants working at interactive tabletop (Experiment 1).	283
14.3	Frequency pie chart. Note: This figure was created with R package ggplot2 (Wickham, 2006).	284
14.4	Bar graph displaying absolute frequencies.	284

	List of Figures	xiii
14.5	Visualization of observed behaviors.	286
14.6	Density plot of participants' interaction at the interactive tabletop during the brainstorming task.	287
14.7	Heatmap of participants' interaction at the interactive tabletop during the brainstorming task.	289
14.8	Visualization of the amount of interaction on the tabletop during the brainstorming task.	290
15.1	Event Sequential Data file.	297
15.2	State Sequential Data file.	300
15.3	Time plot of State Sequential Data.	301
15.4	Recording form for Event Sequential Data.	302
15.5	Recording form for Multi-Event Sequential Data.	303
15.6	Recording form for Timed-Event Sequential Data.	303
15.7	Recording form for State Sequential Data.	304
15.8	Recording form for Interval Sequential Data.	304
15.9	Mother- and grandmother-infant lag 0 associations.	315
15.10	Program GSEQ 5.1 data.	317
15.11	Program GSEQ 5.1 analysis.	318
15.12	Program GSEQ 5.1 results.	319
16.1	Point on a discrete scale where lengths of unit intervals represent the time distances between consecutive ticks of a clock.	326
16.2	The BehaviorCoder screenshot.	332
16.3	Setting of values of search parameters.	334
16.4	Quantitative selection of patterns by narrowing the current value ranges.	336
16.5	Qualitative selection of patterns according to their behavioral content and order of appearance.	337
16.6	Structural selection of patterns based on pattern occurrence.	338
16.7	Two toddlers playing with a picture viewer and exchanging it freely under a transparent acrylic wall separating them.	339
16.8	Monte Carlo results 1.	340
16.9	Monte Carlo results 2.	341
16.10	Patterns found under the two randomizations (pyramids=shuffled, upwards arrow=rotated).	342
16.11	Monte Carlo and event-types.	343
16.12	Higher-level connections among T-patterns.	344
16.13	Simple T-pattern detection tree.	345
16.14	Complex detected T-pattern.	346
16.15	Data points for 16 (8 + 8) dyadic children's puzzle solving interactions separated by vertical dotted lines.	348
16.16	Example of patterns that occurred significantly more often in the first eight dyads with a simple task.	349
16.17	T-packet diagram.	350
18.1	Movement between levels in the RCCCS.	374

xiv	List of Figures	
18.2	Movement between bevels in Murase et al.'s (2015) analysis.	376
18.3	State Space Grid.	383
20.1	The three steps of TINT.	408
20.2	Example of visualized scenario structuring for a high (A) and a low (B) performing team.	409
20.3	Example of visualization of macrocognition phases for a high (A) and a low (B) performing team.	412
22.1	Hierarchical structure of the functional categories.	433
22.2	DCS coding sheet when the paper pencil-version is used.	434
25.1	Toulmin's (1958) model of argumentation.	462
27.1	Conflict coding and an example of a contingent code (Affect)	473
31.1	Co-ACT. Framework for observing coordination behavior in acute care teams.	512
41.1	The Münster Behavior Coding System – Overview.	604

Tables

2.1	Parten’s (1932) category system for social participation among preschool children	<i>page</i>	22
2.2	Looking back at 100 years of group interaction research: Decisions in coding group interactions		26
3.1	Contingency table with Chrissy’s behavior as antecedent		52
3.2	Contingency table with Mother’s behavior as antecedent		52
4.1	Comparison of behavioral marker vs. coding systems		75
6.1	Seven nonverbal communication codes		105
6.2	Recommended level of measurement for various nonverbal behaviors		111
7.1	Tinbergen’s four questions with examples for allo-grooming in primates		123
7.2	Partial ethogram for male mandrills, concentrating on agonistic behaviors recorded in a study of dominance and signaling in males		129
7.3	Combinations of sampling and recording rules and what they can be used to measure		130
7.4	Matrix of avoids and flees made by males in one group of mandrills at the Centre International de Recherches Médicales, Franceville, Gabon in 1996–1997		134
8.1	Overview of physiological, social sensing, and activity trace measurement methods for team and group research		146
9.1	Examples for measuring positive emotion at different levels of behavior granularity and construct concreteness		176
11.1	A selection of semantic and pragmatic unitizing approaches		211
11.2	A selection of syntax-based unitizing approaches		212
11.3	The eight SynSeg rules for unitizing transcribed verbal interaction		217
12.1	Content and typical procedure of training coders using coding manuals		229
12.2	Required components of coding manuals		231
12.3	Overview of indices for assessing interrater reliability based on level of measurement		233
13.1	Categories of software for interaction coding		246

xvi	List of Tables	
13.2	Criteria for selecting software for interaction coding and analyzing	248
13.3	A comparison of selected software for interaction coding and analyzing	251
14.1	Description of Empirical Example 1	282
14.2	Two-by-four contingency table displaying proportion of groups showing territorial behavior as absolute frequencies	283
14.3	Description of Empirical Example 2	285
14.4	Description of Empirical Example 3	291
15.1	Couple verbal interaction, unconditional and lag 1 probabilities	306
15.2	Mother-infant interaction, unconditional and lag 0 probabilities	307
15.3	Couple verbal interaction, lag 1 analysis	309
15.4	Mother- and grandmother-infant interaction, lag 0 analysis	314
16.1	Critical interval (CI) parameters	335
17.1	Examples of floor transitions	357
19.1	Excerpt from the AMI Corpus	390
19.2	Term-document matrix for the AMI data extract	392
19.3	Support vector machine (SVM) and human coding confusion matrix	396
19.4	Maximum entropy (ME) and human coding confusion matrix	396
19.5	Averaged validation metrics for machine-learning algorithms	397
19.6	Ensemble validation for machine-learning algorithms	397
19.7	A sample of human/machine disagreements	399
20.1	Example of interval definitions	408
20.2	Example of definition and behavioral markers for coding of the macrocognition type “detecting”	410
20.3	Example of frequency rates and durations of macrocognition activities for a high (A) and a low (B) performing team	413
20.4	Examples of different macrocognition sequences for a high (A) and a low (B) performing team	414
20.5	Observation scheme for closer analysis	414
V.1	Overview of coding scheme template	420
21.1	Act4teams coding scheme for coding group interactions	423
22.1	Examples for the behavior- and adjective-oriented operationalization	434
22.2	Selection of studies using DCS	435
24.1	The TEMPO coding system	452
27.1	Example of a micro-conflict event	475
28.1	OFFER coding scheme	484
29.1	Summary of VTCS codes and examples from marital discussions	492
30.1	Topic management mechanisms	504
32.1	Examples of SO-DIC-OR codes of distractions and communication in surgical teams	521
33.1	CASoRL coding scheme	530
34.1	Group creativity coding scheme	539
34.2	Visual synopsis template (preliminary format)	542



	List of Tables	xvii
34.3	Visual synopsis example	543
35.1	Summary of indicators of critical thinking (CT) in group interactions	549
36.1	Elevate coding scheme	558
37.1	Sample coding sheet	566
38.1	TRAWIS classification of utterances based on their role in knowledge exchange during conversation	577
38.2	Coding reliability comparison of three different coders	580
39.1	The 13-category BA coding system	586
40.1	Groupness/entitativity observational coding (GEOC)	596
41.1	Exemplary codings (micro-level) and ratings (meso-level) of the Münster Behavior Coding System	605
42.1	Full coding scheme with descriptions of codes	614
44.1	Taxonomy of verbal response modes	632

## Contributors

- MITJA D. BACK, University of Münster
- JOSEPH A. BONITO, University of Arizona
- MARGARETE BOOS, University of Göttingen
- ELISABETH BRAUNER, Brooklyn College and The Graduate Center, The City University of New York
- JEANNE BRETT, Kellogg School Northwestern University
- JONAS BRÜNGGER, University of Applied Sciences and Arts Northwestern Switzerland
- JUDEE K. BURGOON, University of Arizona
- S. ALEXANDRA BURT, Michigan State University
- ADAM DALGLEISH, University of Auckland
- MAREE J. DAVIES, University of Auckland
- JEREMY DAWSON, University of Sheffield
- AARON S. DIETZ, Johns Hopkins University School of Medicine
- NORAH E. DUNBAR, University of California Santa Barbara
- MAAYAN DVIR, Purdue University
- VALENTÍN ESCUDERO, University of A Coruña
- ROSE EVISON, University of Sheffield
- SAMUEL FARLEY, University of Leeds
- MYRNA L. FRIEDLANDER, University at Albany, State University of New York
- ERIN MARIE FURTAK, University of Colorado Boulder
- KATHARINA GEUKES, University of Münster
- MICHAEL GLÜER, University of Applied Sciences South-Westphalia, Germany

- MARC GRÜNBERG, University of Münster
- SARAH HARVEY, UCL School of Management
- LAURIE HEATHERINGTON, Williams College
- SIMONE KAUFFELD, Braunschweig University of Technology
- SADAF KAZI, Armstrong Institute for Patient Safety and Quality, Johns Hopkins University School of Medicine
- SANDRA KELLER, University of Neuchâtel
- JANICE R. KELLY, Purdue University
- JOANN KEYTON, North Carolina State University
- KATHARINA KIEMER, Augsburg University
- CORNELIA KLEINDIENST, University of Applied Sciences and Arts Northwestern Switzerland
- JULIA KOCH, University of Applied Sciences and Arts Northwestern Switzerland
- MICHAELA KOLBE, University Hospital Zurich; ETH Zurich
- CHIA-YU KOU, School of Business, University College Dublin
- ALBRECHT C. P. KÜFNER, University of Münster
- MINSUN LEE, Seton Hall University
- NALE LEHMANN-WILLENBROCK, University of Hamburg
- ZHIKE LEI, Pepperdine University
- MAGNUS S. MAGNUSSON, University of Iceland
- MAGDALENA MATEESCU, University of Applied Sciences and Arts Northwestern Switzerland
- JANA MATTERN, University of Münster
- ANNIKA L. MEINECKE, University of Hamburg
- ROCÍO MENESES, University of Barcelona
- YVONNE METZGER, University of Göttingen
- JOSÉ NAVARRO, University of Barcelona
- ROD NICOLSON, Edge Hill University
- SUSANNAH B. F. PALETZ, University of Maryland
- DANIELLE M. PARSONS, Purdue University

- 
- MARSHALL SCOTT POOLE, University of Illinois Urbana-Champaign
- VICENÇ QUERA, University of Barcelona
- OLIVER RACK, University of Applied Sciences and Arts Northwestern Switzerland
- NEIL RACKHAM, University of Sheffield
- NATASHA REED, University of Göttingen
- FRANK RITZ, University of Applied Sciences and Arts Northwestern Switzerland
- MICHAEL A. ROSEN, Johns Hopkins University School of Medicine
- CARSTEN C. SCHERMULY, SRH University of Applied Sciences
- CORNELIA SCHOOR, University of Bamberg
- THOMAS SCHULTZE, University of Göttingen
- STEFAN SCHULZ-HARDT, University of Göttingen
- CHRISTIAN D. SCHUNN, University of Pittsburgh
- JULIA SEELANDT, University of Zurich
- NORBERT K. SEMMER, University of Bern
- JOANNA M. SETCHELL, Durham University
- ALAN L. SILLARS, University of Montana
- CHRISTINA SOMMER, University of Göttingen
- SARAH M. STAGGS, Arizona State University
- WILLIAM B. STILES, Miami University; Appalachian State University
- J. LUKAS THÜRMER, University of Konstanz; University of Pittsburgh
- FRANZISKA TSCHAN, University of Neuchâtel
- FRANK WIEBER, University of Konstanz; Zurich University of Applied Sciences
- MIKHILA N. WILDEY, Grand Valley State University
- JINGJING YAO, IESEG School of Management
- CARMEN ZAHN, University of Applied Sciences and Arts Northwestern Switzerland
- ZHI-XUE ZHANG, Peking University
- JASMIN ZIMMERMANN, University of Neuchâtel
- SARAH ZOBEL, University of Tübingen

## Editors' Preface

The principle which I have suggested as basic to human social organization is that of communication involving participation in the other. This requires the appearance of the other in the self, the identification of the other with the self, the reaching of self-consciousness through the other.

George Herbert Mead

If observing and coding interaction was a simple process, you would not be holding this book in your hands. Much expertise, skill, and some ability are involved in successfully applying interaction analysis methods and avoiding making rookie mistakes. Until now, a lot of the writing on theory, methodology, statistical analysis, and practical application of observing interactive behavior was dispersed across many books, literature reviews, and research articles in a large number of sources and across different fields. Although no single book can ever make all those other important publications redundant, this handbook is a complete resource for everything related to interaction analysis but, at the same time, functions as a gateway to those other publications.

Scholars from all areas in which interaction analysis is used and applied have lent their expertise and written chapters that will allow newcomers, as well as experienced researchers, to expand and deepen their knowledge, learn step by step how to conduct interaction analysis, and find access to literature that is dispersed in various fields.

Just as diverse as the field of our contributors is the audience to which this book is addressed. Researchers in the fields of business, communication, education, management studies, political science, industrial and organizational psychology, social psychology, sociology, and linguistics will hopefully find this handbook a useful resource for basic and applied research and for teaching graduate and some advanced undergraduate courses. It is appropriate for researchers new to this field as well as for expert scholars looking for a single resource or for inspiration for further reading. It can also benefit applied researchers-practitioners who are conducting research projects based on observation in many different fields, for instance, the health sector, human factors research, psychotherapy, consulting, or marketing research. Practitioners in these areas can get a quick overview of the methodology, methods, and techniques to learn to apply interaction analysis in their respective fields.

### Brief Long History of This Handbook

This book is the result of many years of using, and thinking about, interaction coding and interaction analysis and almost as many years of planning. It started with a meeting of Elisabeth Brauner, Margarete Boos, and Franziska Tschan at the conference of the Society of Experimental Social Psychology (SESP) in 2005 in San Diego, California. It was against the backdrop of the little harbor at the conference hotel, the view of the Pacific Ocean, and the scent of fish and chips that we first hashed out the plan to put this book together. Due to other projects, responsibilities, and tenure and promotion processes, it was put on the backburner for a few years before it was revived again during Elisabeth Brauner's sabbatical leave in 2010/2011 and visit with Franziska Tschan in Switzerland and Margarete Boos in Göttingen.

Due to other obligations, Franziska Tschan had to leave the project, but we (Elisabeth Brauner and Margarete Boos) were delighted that Renee A. Meyers agreed to join us. Work on the project continued until Renee's untimely passing in March 2012, which froze us and any activity on this project for over a year. It was another conference, the INTERCOM, organized by Simone Kauffeld in Braunschweig in 2013, that brought the project to the foreground again and, joined by Michaela Kolbe, motivated us to give it another try. Finally, Rebecca Taylor's (then commissioning editor at Cambridge University Press) visit to Brooklyn College led to the project getting an appropriate home and getting the ball rolling.

We gratefully acknowledge the University Syndicate Board at Cambridge University Press for believing in our project as much as we did; and we thank Rebecca Taylor, Hetty Marx, and Karen Oakes for their assistance in the first stages, as well as our editor, Janka Romero, and editorial assistant, Abigail Walkington, as well as Neil Ryan and Chloe Bradley (all at Cambridge),



*Left: The first stages of the planning process of this handbook, SESP conference 2005, San Diego, California (photograph: Elisabeth Brauner); Right: Working on the handbook (from left Margarete Boos, Michaela Kolbe, Elisabeth Brauner; photograph: Margarete Boos).*

Puviarassy Kalieperumal (Integra-PDY), and Matthew Bastock for taking care of us so gently and supportively in the final stages of the project.

We wish to thank all authors of this book for their confidence in this project and for the time and effort that they put into writing their chapters. This handbook would not have been possible without all of them. We also would like to recognize Anthony Caines (Academic Information Technologies, Brooklyn College) for recreating some of the figures from scratch, and we wish to express thanks to the research assistants who put the reference list in the Appendix together: Noah Ringler (Claremont Graduate University), Sascha Behrens (University of Göttingen), Lia Espe (University of Göttingen), and Roberto Alejandro Ortiz (Brooklyn College, City University of New York).

**Elisabeth Brauner**  
**Margarete Boos**  
**Michaela Kolbe**

## Organization of This Handbook

Joseph E. McGrath was passionate about not making students code interaction data because it is just such torture and because it would take them too long to finish their studies (personal communication, ca. April 2001). While not in spite of, but certainly instead of McGrath's strong conviction, we decided a reference book was needed that will allow students and other researchers much easier access to theory, methodology, and methods of interaction analysis. The result is this handbook, which is divided into five parts.

Part I focuses on the theoretical and historic background of interaction analysis. It addresses what interaction analysis is and why it matters. Part II presents a variety of areas in which interaction research is applied and conducted. These chapters cover relational communication and dyadic interaction analysis, group research, nonverbal communication, and animal behavior. It also presents interaction research methods that go beyond coding interaction. Part III details what needs to be done before, during, and after coding. It presents the procedure of interaction analysis, that is, what researchers need to know to get started, to choose or develop a coding scheme, to prepare the data for coding by unitizing them, and to check whether the codings are reliable and valid. An overview of available software that can assist with interaction analysis is also part of this section. Part IV presents concrete data analysis techniques and relevant statistics that can be applied to further analyze and present coded data. The chapters focus on frequency analyses, sequential analyses, as well as special problems in interaction research, such as interdependence of data and the analysis of multiple levels. Several of the chapters also present quantitative and qualitative methods of visualizing coded data. Part V is comprised of a selection of coding schemes that can be used for different purposes in various research contexts. Each chapter in this last section is structured following a template that reflects all relevant characteristics and descriptors to enable researchers to make informed decisions. At the beginning of Part V, the template and organizational system of the coding schemes will be explained. In addition, readers will find a listing of further coding schemes with short synopses for each in the appendix.



## How to Work with This Handbook

Readers can, of course, read this handbook cover to cover, although that is relatively unlikely to happen. Therefore, we would like to provide a roadmap as to how to approach this volume.

Readers unfamiliar with what interaction analysis is, and how it is done, should start with Part I, where they will learn how interaction analysis is understood here, how it is different from other forms of interaction analysis, and learn about its historic roots. Then, they should explore Part II, where the various areas are presented in accordance with which interaction analysis is being conducted: verbally and nonverbally, in dyads (close relationships and families), groups and teams, and animals. Each chapter also provides a slightly different perspective on the essentials of theory and methodology of interaction analysis.

Readers familiar with interaction analysis but interested in how it is being used and applied in other fields (e.g., a group researcher interested in learning about dyadic interaction research) should peruse Part II of the book.

Readers interested in quickly learning how to apply observational coding in their research can focus on Part III and learn how to select the appropriate coding scheme if a construct has been studied before, or how to construct a new coding scheme if previously published instruments are not suitable. Here, they can also find an appropriate software program to support the coding process and data analysis. Then, they can review Part V to explore which coding scheme would best fit their interest.

Readers who already have finished coding their data, but are not sure how to continue, should read about quality control in Part III and focus on Part IV for ideas about data analysis and further possibilities for presentation of results. If no sequential information is available in the coded data, then only certain analysis techniques will apply (e.g., frequency analyses); but if sequential information is available in the data, Part IV contains a range of possible further analysis techniques.

Finally, readers who are simply interested in getting quick access and informative descriptions of some of the available coding schemes can focus on Part V of the handbook and select the coding scheme that is most suitable for their research and their construct of interest. Additionally, the Appendix contains a reference list of published coding schemes along with short summaries of their purpose.

Throughout all chapters, cross-references enable readers to recognize connections between topics; readers can read chapters accordingly as they seem relevant to their purpose and interest. Some chapters also contain cross-references to coding schemes, thus providing examples that can be directly reviewed.

This handbook was written to be suitable for multiple audiences at different levels of expertise. Authors come from all disciplines relevant to interaction analysis: communication, education, management science, psychology, sociology, and anthropology, as well as applied fields, such as medical research and research on high reliability organizations. These various angles result in a comprehensive review of the current state of the art in interaction research and thus provide unique perspectives and new insights.