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

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
Information on this title: www.cambridge.org/9781107113336
DOI:10.1017/9781316286302

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://lccn.loc.gov/2018012352

ISBN 978-1-107-11333-6 Hardback
ISBN 978-1-107-53387-5 Paperback

To the memory of

Renee A. Meyers

Contents

Figures

Tables

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.