

The Social Neuroscience of Empathy

edited by Jean Decety and William Ickes





30806053

The Social Neuroscienc

edited by Jean Decety and William Ickes

A Bradford Book
The MIT Press
Cambridge, Massachusetts
London, England



© 2009 Massachusetts Institute of Technology

All rights reserved. No part of this book may be reproduced in any form by any electronic or mechanical means (including photocopying, recording, or information storage and retrieval) without permission in writing from the publisher.

For information about special quantity discounts, please e-mail special_sales@mitpress.mit.edu

This book was set in Stone Sans and Stone Serif by SNP Best-set Typesetter Ltd., Hong Kong. Printed and bound in the United States of America.

Library of Congress Cataloging-in-Publication Data

The social neuroscience of empathy / edited by Jean Decety and William Ickes.

p. cm.—(Social neuroscience)

"A Bradford book."

Includes bibliographical references and index.

ISBN 978-0-262-01297-3 (hardcover : alk. paper) 1. Empathy. 2. Neurosciences. 3. Social psychology. I. Decety, Jean. II. Ickes, William John.

BF575.E55S63 2009

155.2'32—dc22

2008034814

10 9 8 7 6 5 4 3 2

Introduction: Seeking to Understand the Minds (and Brains) of People Who Are Seeking to Understand Other People's Minds

After decades as the cultivated interest of scholars in philosophy and in clinical and developmental psychology, empathy research is suddenly everywhere! Seemingly overnight it has blossomed into a vibrant, multidisciplinary field of study and has crossed the boundaries of clinical and developmental psychology to plant its roots firmly in the soil of personality and social psychology, mainstream cognitive psychology, and cognitive-affective neuroscience.

To account for the recent explosion of empathy research, we must trace its growth to roots that are less obvious but even deeper than those mentioned so far: the study of the capacity for empathy in evolutionary biology and evolutionary psychology. As Sue Carter, James Harris, and Stephen Porges argue in chapter 13 of the present volume, the capacity for empathy in humans and their progenitor species developed over millions of years of evolutionary history, in ways that are only now becoming clear. Although it is impossible to travel back in time and observe these developments directly, the evidence for them is available in the neuroanatomical continuities and differences that can be observed across the phylogenetic spectrum.

Given the long evolutionary history of the capacity for empathy, there is some irony in the fact that the word *empathy* has a relatively short history, being not much more than a hundred years old (see Ickes, 2003, chap. 4). Not only is empathy a rather recent construct, but it is a complicated one that, from its very introduction, has been used by different writers in very different ways.

It is appropriate, therefore, that an interdisciplinary book such as this one begin with a critical examination of the concept of empathy and the range of different meanings it has acquired to date. Accordingly, in chapter 1 Daniel Batson examines eight conceptually distinct phenomena that have all been labeled "empathy" and calls for a more theoretically coherent articulation of this important construct.

The second part of this volume vividly illustrates the divergent views of empathy that Batson has noted by presenting empathy variously as emotional contagion based on unconscious mimicry (chapters 2 and 3); as the projection of one's own thoughts and feelings onto others (chapter 4); as the ability to accurately infer another person's thoughts and

feelings (chapter 5); as a complex affective-inferential process that often translates into prosocial behavior (chapter 6); and as a fundamental aspect of social development that contemporary educators should urgently promote (chapter 7).

The third part of this volume offers a range of clinical perspectives on empathy. It begins with a review of the role of empathy in the Rogerian client-centered perspective (chapter 8), continues with a dialogical view of how empathy is achieved during psychotherapy (chapter 9); then explores the concept of empathic resonance from a neuroscience perspective (chapter 10); links empathy to the study of morality and social convention (chapter 11); and examines the role of empathy in people's reactions to others in pain (chapter 12).

The fourth and final part of this volume explores the deepest and oldest roots of empathy by examining its evolutionary history and its neuroanatomical history. Chapter 13 provides an evolutionary view of empathy that focuses on how emotional and visceral states influence how we feel about and react to others and thus affect our capacity for empathy. Chapter 14 focuses more specifically on the mirror neuron system, arguing that it provides a neural and behavioral foundation for interpersonal understanding. Chapter 15 shows how recent work in the area of cognitive-affective neuroscience has enabled researchers to identify a clear distinction between empathy and personal distress in terms of the different neural substrates that underlie the two phenomena. Finally, Chapter 16, noting the deficits in empathic behavior that are observed following brain damage, proposes that empathy involves separate, albeit interacting, brain networks.

The new discipline of social neuroscience is exciting because it integrates, builds upon, and challenges more traditional approaches. For example, theories in social psychology provide important guidelines for investigating the information-processing mechanisms that underlie empathy and determine their neural instantiation. The social neuroscience approach can also help to disambiguate competing social theories; in the domain of empathy; for instance, this approach has been used to validate at a neurological level the distinction between personal distress and empathic concern. Finally, the social neuroscience approach has led some theorists to challenge existing beliefs—for example, the notion that there are domain-specific “theory of mind” modules in the brain. Alternative accounts (Decety & Lamm, 2007; Stone & Gerrans, 2007) argue that (a) elementary computational operations have evolved to perform social functions, and (b) evolution has constructed layers of increasing complexity, from nonrepresentational to representational and meta-representational mechanisms, which may be sufficient to provide a complete understanding of human social cognition.

The present book is not, and cannot be, the final word on empathy research. It does, however, seek to provide the reader with a representative sampling of current, state-of-the-art knowledge about empathy—knowledge that draws from contemporary work in biology, developmental psychology, cognitive-affective neuroscience and neuropsychology, social and cognitive psychology, and the more applied disciplines of clinical and health psychology.

A hallmark of the newest of these disciplines, the emerging field of social neuroscience, is its use of methods that bridge a variety of disciplines and levels of analysis. We hope that the reader will, like us, be excited by the potential for cross-disciplinary integration that the study of social neuroscience promises. We also hope that the chapters in this book will stimulate even more sharing of ideas and collaboration in research between the different academic domains that actively pursue the study of empathy.

References

- Decety, J., & Lamm, C. (2007). The role of the right temporoparietal junction in social interaction: How low-level computational processes contribute to meta-cognition. *Neuroscientist*, 13, 580–593.
- Ickes, W. (2003). *Everyday mind reading: Understanding what other people think and feel*. Amherst, NY: Prometheus Books.
- Stone, V. E., & Gerrans, P. (2007). What's domain-specific about theory of mind. *Social Neuroscience*, 1 (2–4), 309–319.

The Social Neuroscience of Empathy

Contents

Introduction: Seeking to Understand the Minds (and Brains) of People Who Are Seeking to Understand Other People's Minds vii

I What Is Empathy? 1

1 These Things Called Empathy: Eight Related but Distinct Phenomena 3

C. Daniel Batson

II Social, Cognitive, and Developmental Perspectives on Empathy 17

2 Emotional Contagion and Empathy 19

Elaine Hatfield, Richard L. Rapson, and Yen-Chi L. Le

3 Being Imitated: Consequences of Nonconsciously Showing Empathy 31

Rick B. van Baaren, Jean Decety, Ap Dijksterhuis, Andries van der Leij, and Matthijs L. van Leeuwen

4 Empathy and Knowledge Projection 43

Raymond S. Nickerson, Susan F. Butler, and Michael Carlin

5 Empathic Accuracy: Its Links to Clinical, Cognitive, Developmental, Social, and Physiological Psychology 57

William Ickes

6 Empathic Responding: Sympathy and Personal Distress 71

Nancy Eisenberg and Natalie D. Eggum

7 Empathy and Education 85

Norma Deitch Feshbach and Seymour Feshbach

III Clinical Perspectives on Empathy 99**8 Rogerian Empathy in an Organismic Theory: A Way of Being 101**

Jerold D. Bozarth

9 Empathy in Psychotherapy: Dialogue and Embodied Understanding 113

Mathias Dekeyser, Robert Elliott, and Mia Leijssen

10 Empathic Resonance: A Neuroscience Perspective 125

Jeanne C. Watson and Leslie S. Greenberg

11 Empathy, Morality, and Social Convention: Evidence from the Study of Psychopathy and Other Psychiatric Disorders 139

R. J. R. Blair and Karina S. Blair

12 Perceiving Others in Pain: Experimental and Clinical Evidence on the Role of Empathy 153

Liesbet Goubert, Kenneth D. Craig, and Ann Buysse

IV Evolutionary and Neuroscience Perspectives on Empathy 167**13 Neural and Evolutionary Perspectives on Empathy 169**

C. Sue Carter, James Harris, and Stephen W. Porges

14 "Mirror, Mirror, in My Mind": Empathy, Interpersonal Competence, and the Mirror Neuron System 183

Jennifer H. Pfeifer and Mirella Dapretto

15 Empathy versus Personal Distress: Recent Evidence from Social Neuroscience 199

Jean Decety and Claus Lamm

16 Empathic Processing: Its Cognitive and Affective Dimensions and Neuroanatomical Basis 215

Simone G. Shamay-Tsoory

Contributors 233

Author Index 235

Subject Index 245

I What Is Empathy?

1 These Things Called Empathy: Eight Related but Distinct Phenomena

C. Daniel Batson

Students of empathy can seem a cantankerous lot. Although they typically agree that empathy is important, they often disagree about why it is important, about what effects it has, about where it comes from, and even about what it is. The term *empathy* is currently applied to more than a half-dozen phenomena. These phenomena are related to one another, but they are not elements, aspects, facets, or components of a single thing that is empathy, as one might say that an attitude has cognitive, affective, and behavioral components. Rather, each is a conceptually distinct, stand-alone psychological state. Further, each of these states has been called by names other than empathy. Opportunities for disagreement abound.

In an attempt to sort out this disagreement, I wish first to identify two distinct questions that empathy is thought to answer. Then I wish to identify eight distinct phenomena that have been called empathy. Finally, I wish to relate these eight phenomena to the two questions.¹

Empathy as an Answer to Two Different Questions

Application of the term *empathy* to so many distinct phenomena is, in part, a result of researchers invoking empathy to provide an answer to two quite different questions: How can one know what another person is thinking and feeling? What leads one person to respond with sensitivity and care to the suffering of another? For some students of empathy, answers to these two questions are related. However, many more seek to answer the first question without concern to answer the second, or vice versa.

The first question has been of particular interest to philosophers, cognitive scientists, neurophysiologists, primatologists, and developmental psychologists interested in the theory of mind. Both *theory theorists*, who suggest that we use our lay theories about the mind to infer the internal states of others, and *simulation theorists*, who suggest that we imagine ourselves in others' situations and read their internal states from our own, have invoked empathy to explain how we humans come to know what others are thinking and feeling.

The question of what leads us to respond with sensitive care to another's suffering has been of particular interest to philosophers and to developmental and social psychologists seeking to understand and promote prosocial action. The goal of these researchers is not to explain a particular form of knowledge but to explain a particular form of action: action by one person that effectively addresses the need of another. Those using empathy to answer this question are apt to say that empathic feelings *for* the other—feelings of sympathy, compassion, tenderness, and the like—produce motivation to relieve the suffering of the person for whom empathy is felt.

Eight Uses of the Term *Empathy*

An example may help clarify distinctions among different uses of the term *empathy*. Imagine that you meet a friend for lunch. She seems distracted, staring into space, not very talkative, a bit down. Gradually, she begins to speak, then to cry. She explains that she just learned that she is losing her job because of downsizing. She says that she is not angry but that she is hurt, and a bit scared. You feel very sorry for her, and say so. You are also reminded that there has been talk of job cuts where you work as well. Seeing your friend so upset makes you feel a bit anxious and uneasy. You also feel a brief flash of relief—"Thank God it wasn't me!" At least eight different psychological states you might experience in this interchange correspond to distinct concepts of empathy.

Concept 1: Knowing Another Person's Internal State, Including His or Her Thoughts and Feelings

Some clinicians and researchers have called knowing another person's internal state empathy (e.g., Preston & de Waal, 2002; Wispé, 1986). Others have called this knowledge "cognitive empathy" (Eslinger, 1998; Zahn-Waxler, Robinson, & Emde, 1992) or "empathic accuracy" (Ickes, 1993).

Sometimes, to ascertain what someone else is thinking and feeling can pose quite a problem, especially when one has only limited clues. But in our example, knowing your friend's internal state is relatively easy. Once she explains, you may be confident that you know what is on her mind: losing her job. From what she says, and perhaps even more from the way she acts, you may also think you know how she feels: she is hurt and scared. Of course, you could be wrong, at least about some nuances and details.

Concept 2: Adopting the Posture or Matching the Neural Responses of an Observed Other

Adopting the posture or expression of an observed other is a definition of empathy in many dictionaries. The philosopher Gordon (1995) speaks of this as "facial empathy." Among psychologists, adopting another's posture is more likely to be called "motor mimicry" (Dimberg, Thunberg, & Elmehed, 2000; Hoffman, 2000) or "imitation" (Lipps, 1903; Meltzoff & Moore, 1997; Titchener, 1909).

Preston and de Waal (2002) proposed what they claim is a unified theory of empathy that focuses on mimicked neural representations rather than mimicked motor activity. Their theory is based on a perception-action model. According to this model, perceiving another in a given situation automatically leads one to match the other's neural state because perception and action rely in part on the same neural circuits. As a result of the matched neural representation, which need not produce either matched motor activity or awareness, one comes to feel something of what the other feels, and thereby to understand the other's internal state.

To claim that either neural response matching or motor mimicry is the unifying source of all empathic feelings seems to be an overestimation of their role, especially among humans. Perceptual neural representations do not always and automatically lead to feelings, whether matched or unmatched. And at a motor level, neither humans nor other species mimic all actions of others. To find oneself tensing and twisting when watching someone balance on a tightrope is a familiar experience; it is hard to resist. Yet we may watch someone file papers with little inclination to mimic the action. Something more than automatic mimicry must be involved to select those actions that are mimicked and those that are not. Moreover, it has been found that mimicry itself may not be as reactive and automatic as has been assumed. Meltzoff and Moore (1997) present much evidence that mimicry or imitation is an active, goal-directed process even in infants. And in adults, mimicry often serves a higher-order communicative function (LaFrance & Ickes, 1981). In the words of Bavelas and colleagues (1986), "I show how you feel" in order to convey "fellow feeling" or support.

Rather than relying solely on response matching or mimicry to provide clues to the internal states of others, humans can also use memory and general knowledge to infer what others think and feel in various situations (Singer et al., 2004; Tomasello, 1999). Indeed, the problem of anthropomorphism arises precisely because we humans have the ability—and inclination—to make such inferences, even about other species. Equally important, humans can rely on direct communication from one another to learn about internal states. In our example, your friend told you what she was thinking and feeling.

Concept 3: Coming to Feel as Another Person Feels

Coming to feel the same emotion that another person feels is another common dictionary definition of empathy. It is also a definition used by some philosophers (e.g., Darwall, 1998; Sober & Wilson, 1998), neuroscientists (Damasio, 2003; Decety & Chaminade, 2003; Eslinger, 1998), and psychologists (Eisenberg & Strayer, 1987; Preston & de Waal, 2002). Often, those who use this definition qualify it by saying that the empathizer need not feel exactly the same emotion, only a similar one (e.g., Hoffman, 2000). However, what determines whether an emotion is similar enough is never made clear.

Key to this use of the term empathy is not only emotion matching but also emotion "catching" (Hatfield, Cacioppo, & Rapson, 1994). To know that one person has come to feel as another feels, it is necessary to know more than that the former has a physiological response of roughly the same magnitude at roughly the same time as the latter—what

Levenson and Ruef (1992) called “shared physiology.” Shared physiology provides no clear evidence of either matching (the observer’s arousal might be associated with a qualitatively different emotion) or catching (rather than being a response to the target’s emotional state, the observer’s arousal might be a parallel response to a shared situation, perhaps one to which the target’s response drew attention).

Among philosophers, coming to feel as the other feels has often been called “sympathy,” not empathy (Hume, 1740/1896; Smith, 1759/1853). Among psychologists, it has been called “emotional contagion” (Hatfield, Cacioppo, & Rapson, 1994), “affective empathy” (Zahn-Waxler, Robinson, & Emde, 1992), and “automatic emotional empathy” (Hodges & Wegner, 1997).

In one of the most frequently cited studies of the developmental origins of empathy, Sagi and Hoffman (1976) presented one- to two-day-old infants either with tape-recorded sounds of another infant crying, with sounds of a synthetic nonhuman cry, or with no sounds. Those infants presented with another infant’s cry cried significantly more than those presented with a synthetic cry or with silence. Sagi and Hoffman (1976, p. 176), and many others since, interpreted this difference as evidence of an inborn “rudimentary empathic distress reaction,” that is, as evidence of one newborn infant catching and matching another’s affective state.

However, to interpret this research as evidence of an inborn rudimentary empathic reaction seems premature. There are alternative explanations for crying in response to another infant’s cry, alternatives that to my knowledge have never been recognized in the literature. To give but one example, crying in response to another infant’s cry may be a competitive response that increases the chances of getting food or comfort. (The infants in the Sagi and Hoffman study were tested 1 to 1½ hours before feeding time.) Imagine that we did a similar study using baby birds in a nest. We would not likely interpret the rapid spread of peeping and open-mouth straining once one baby bird starts peeping and straining as a rudimentary empathic reaction.

Concept 4: Intuiting or Projecting Oneself into Another’s Situation

Listening to your friend, you might have asked yourself what it would be like to be a young woman just told she is losing her job. Imaginatively projecting oneself into another’s situation is the psychological state referred to by Lipps (1903) as *Einfühlung* and for which Titchener (1909) first coined the English word *empathy*. Both were intrigued by the process whereby a writer or painter imagines what it would be like to be some specific person or some inanimate object, such as a gnarled, dead tree on a windswept hillside.

This original definition of empathy as aesthetic projection often appears in dictionaries, and it has appeared in recent philosophical discussions of simulation as an alternative to *theory theories* of mind. But such projection is rarely what is meant by empathy in contemporary psychology. Still, Wispé (1968) included such projection in his analysis of sympathy and empathy, calling it “aesthetic empathy.”

Concept 5: Imagining How Another Is Thinking and Feeling

Rather than imagine how it would feel to be a young woman just told she is losing her job, you might imagine how your friend is thinking and feeling. Your imagining can be based both on what she says and does and on your knowledge of her character, values, and desires. Stotland (1969) spoke of this as a particular form of perspective taking, an “imagine him” perspective. More generally, it has been called an “imagine other” perspective (Batson, 1991).

Wispé (1968) called imagining how another is feeling “psychological empathy” to differentiate it from the aesthetic empathy of concept 4. Adolphs (1999) called it “empathy” or “projection”; Ruby and Decety (2004) called it “empathy” or “perspective taking.”

In a perceptive analysis from a therapeutic perspective, Barrett-Lennard (1981) spoke of adopting an “empathic attentional set.” This set involves “a process of feeling into, in which Person A opens him- or herself in a deeply responsive way to Person B’s feelings and experiencing but without losing awareness that B is a distinct other self” (p. 92). At issue is not so much what one knows about the feelings and thoughts of the other but one’s sensitivity to the way the other is affected by his or her situation.

Concept 6: Imagining How One Would Think and Feel in the Other’s Place

Adam Smith (1759/1853) colorfully referred to the act of imagining how one would think and feel in another person’s situation as “changing places in fancy.” Mead (1934) sometimes called it “role taking” and sometimes “empathy”; Povinelli (1993) called it “cognitive empathy.” Darwall (1998) spoke of “projective empathy” or “simulation.” In the Piagetian tradition, imagining how one would think in the other’s place has been called either “perspective taking” or “decentering” (Piaget, 1953).

Stotland (1969) called this an “imagine-self” perspective, distinguishing it from the imagine-other perspective of concept 5. The imagine-other and imagine-self forms of perspective taking have often been confused or equated with one another, despite empirical evidence suggesting that they should not be (Batson, Early, & Salvarani, 1997; Stotland, 1969).

To adopt an imagine-self perspective is in some ways similar to the act of projecting oneself into another’s situation (concept 4). Yet these two concepts were developed independently in very different contexts, one aesthetic and the other interpersonal, and the self remains more focal here than in aesthetic projection, so it seems best to keep them separate.

Concept 7: Feeling Distress at Witnessing Another Person’s Suffering

A state of distress evoked by witnessing another’s distress—your feelings of anxiety and unease evoked by seeing how upset your friend was—has been given a variety of names, including “empathy” (Krebs, 1975), “empathic distress” (Hoffman, 1981), and “personal distress” (Batson, 1991).

This state does not involve feeling distressed *for* the other (see concept 8) or distressed *as* the other (concept 3). It involves feeling distressed *by* the state of the other.

Concept 8: Feeling for Another Person Who Is Suffering

In contemporary social psychology, the term “empathy” or “empathic concern” has often been used to refer to an other-oriented emotional response elicited by and congruent with the perceived welfare of someone else (e.g., Batson, 1991). *Other-oriented* here refers to the focus of the emotion; it is felt *for* the other. *Congruent* refers to the valence of the emotion—positive when the perceived welfare of the other is positive, negative when the perceived welfare is negative. To speak of congruence does not imply that the content of the emotion is the same or even similar, as in concept 3. You might, for example, feel sad or sorry for your friend, who is scared and upset.

Other-oriented emotion felt when another is perceived to be in need has not always been called empathy. It has also been called “pity” or “compassion” (Hume, 1740/1896; Smith, 1759/1853), “sympathetic distress” (Hoffman, 1981, 2000), and simply “sympathy” (Darwall, 1998; Eisenberg & Strayer, 1987; Preston & de Waal, 2002; Sober & Wilson, 1998; Wispé, 1986).

Implications

I have listed these eight phenomena to which the term empathy has been applied for two reasons. First, I hope to reduce confusion by recognizing complexity. Second, I wish to consider how each phenomenon fits into answers to the two questions raised at the outset.

It would simplify matters if empathy referred to a single object and if everyone agreed on what that object was. Unfortunately, as with many psychological terms, this is not the case. Both *empathy* and *sympathy* (the term with which empathy is most often contrasted) have been used in a variety of ways. Indeed, with remarkable consistency exactly the same state that some scholars have labeled empathy others have labeled sympathy. I have discerned no clear basis—either historical or logical—for favoring one labeling scheme over another. The best one can do is recognize the different phenomena, make clear the labeling scheme one is adopting, and use that scheme consistently.

Not all eight empathy phenomena are relevant to each of the two empathy-related questions. It is worth considering the relation of each phenomenon to each question in turn.

Question 1: How Do We Know Another’s Thoughts and Feelings?

Knowing another person’s internal state (concept 1) is the phenomenon for which the first question seeks an explanation. Five of the other phenomena have been offered as explanations. Adopting the posture or matching the neural responses of an observed other (concept