CHAPTER 50

EMPATHY

Jamil Zaki and Kevin Ochsner

In *The Western Illusion of Human Nature*, the anthropologist Marshall Sahlins (2008) chronicles a common idea uniting philosophers including Thucydides, Thomas Hobbes, and John Adams. According to Sahlins, these thinkers believed that social contracts are needed to restrain humans from expressing their antisocial "natural state," under which self-interest trumps all other concerns. This view of human nature has made its way into popular culture—via, for instance, the proclamation of *Wall Street*'s Gordon Gekko that "greed is good"—but it is not universal. Traditions throughout the world instead hold that people's identities are distributed, not only in their physical bodies but also across the persons about whom they care. Sahlins (2008) sums up the challenge these traditions pose to a self-oriented view of human nature: "What means 'self-interest' when both selves and interests are transpersonal relationships rather than the predicate of individuals?" (p. 43).

Increasingly, behavioral and neuroscientific research has weighed in on the side of this "transpersonal" view. Although people are physical islands, at a psychological level we are deeply intertwined. People commonly and powerfully share one another's internal states, and spend inordinate amounts of time thinking about others' experiences. The term "empathy" captures these phenomena, and more broadly describes the porous nature of emotions shared across interpersonal boundaries.

Defining Empathy and Its Components

We operationalize empathy as *the ability and tendency to share and understand others' internal states* (Zaki & Ochsner, 2012). This definition highlights the idea that empathy is a multifaceted construct comprising related but distinct components. Two of these processes have attracted the lion's share of empirical and theoretical attention over the last decades. The first of these is *experience sharing*, or the tendency of *perceivers* (individuals focusing on someone else) to take on the sensorimotor, visceral, and affective states of *targets* (individuals on whom perceivers focus). Early philosophical definitions often describe empathy solely in terms of experience sharing (Lipps, 1903; Smith, 1790/2002), and many theoretical models hold that this phenomenon constitutes empathy's central component (Gallese, 2007; Preston & de Waal, 2002). Regardless of one's stance on the centrality of experience sharing, a raft of empirical work demonstrates that people take on various kinds of states that they observe in others. For example, perceivers mimic others' bodily postures and facial movements (Chartrand & Lakin, 2013; Dimberg & Thunberg, 1998), experience autonomic arousal when they observe it in targets (Levenson & Ruef, 1992; Vaughan & Lanzetta, 1980), and take on targets' moods (Neumann & Strack, 2000).

Though experience sharing is a powerful empathic process, it is not the only one. A second,

known as *mentalizing*, describes perceivers' explicit reasoning about targets' internal states using lay "theories" about how situations produce internal states (Gopnik & Wellman, 1992). For instance, most of us know that people can see things that are in front of, but not behind, them; we likewise generally believe that eating ice cream makes people happier than having a cavity drilled. When perceivers mentalize, they combine these intuitions with outward signs targets display (e.g., their facial expressions or actions) to draw inferences about targets' underlying emotions, intentions, and beliefs. Importantly, this form of mentalizing—the use of lay theories to decipher target cues—differs from the simpler process of merely accessing information about targets' states or traits, which can occur rapidly and spontaneously (Gilbert, Pelham, & Krull, 1989; Todorov & Uleman, 2002). The study of mentalizing finds its roots in developmental, ethological, and philosophical work on "theory of mind" (Flavell, 1999; Leslie, 1994; Premack & Woodruff, 1978). Since then, it has expanded to include social psychological investigations of the mechanisms underlying mentalizing (Ames, 2004; Epley, Keysar, Van Boven, & Gilovich, 2004) and computational models that specify the structure of perceivers' lay theories about targets (Baker, Saxe, & Tenenbaum, 2009; Ong, Zaki, & Goodman, 2015; Zaki, 2013).

Mentalizing and experience sharing relate to a third key component of empathy: *prosocial motivation*, through which individuals who share and understand targets' states often are compelled to help those targets (Batson, 2011; Zaki & Ochsner, 2012). We discuss this motivational component of empathy in more detail below.

Independence of Empathic Processes

Many theories of empathy posit a strong boundary between experience sharing and mentalizing (Davis, 1994; Decety & Jackson, 2004; Hoffman, 1984; Singer, 2006; Uddin, Iacoboni, Lange, & Keenan, 2007), which often go by different but aligned terms such as "cognitive and affective empathy" (Shamay-Tsoory, Aharon-Peretz, & Perry, 2009) or "empathic concern" and "perspective taking" (Davis, 1983). As we (Zaki, 2013; Zaki & Ochsner, 2011, 2012) have pointed out, these processes are impressively dissociable along a number of dimensions, which can be used to organize research on empathy from various psychological subdisciplines (see Table 50.1 for a summary of these dissociations).

TABLE 50.1.

Experience sharing	Mentalizing
Development	
Rudimentary experience sharing in first weeks of life	Early signs toward end of first year/beginning of second year
Stable through first years of life	Develops over the course of early childhood, potentially in conjunction with other cognitive processes
Cognitive features	
Occurs rapidly and outside of awareness, and in the presence of concurrent tasks	Requires time, effort, and attention
Brain systems	
Neural resonance in regions associated with sensorimotor processing, visceral sensation, and affect	Regions of the so-called default network, including MPFC, TPJ, and STS
Disorders	
Psychopathy, conduct disorder, frontotemporal dementia	Autism spectrum disorders

Note. MPFC, medial prefrontal cortex; TPJ, temporoparietal junction; STS, superior temporal sulcus.

Development

The first "wedge" that separates experience sharing and mentalizing is each process's developmental trajectory. Although somewhat sparse, existing evidence suggests that experience sharing, as compared with mentalizing, (1) comes online earlier in ontogeny and (2) remains more stable over the course of development.

Almost immediately after birth, neonates mimic facial movements such as tongue protrusions (Anisfeld, 1991; Meltzoff & Moore, 1977), consistent with a readily triggered link between perception of an action and the "sharing" of that action through imitation. Soon thereafter, infants display other signs of experience sharing. For instance, in the first week of life, infants express distress upon hearing the sound of another infant's cries (Sagi & Hoffman, 1976), but not when played the sound of their own cries (Martin & Clark, 1982). Ten-week-old infants broaden their imitative palette, responding congruently to adults' emotional facial expressions (Haviland &

Lelwica, 1987). Theorists such as Hoffman (2001) frame this type of experience sharing as the most primitive beginnings of later-developing concern for others. Interestingly, affect sharing also appears relatively stable in early development, as assessed through a small but growing number of longitudinal studies of children's naturalistic responses to feigned or videotaped pain in others (Davidov, Zahn-Waxler, Roth-Hanania, & Knafo, 2013). For instance, Knafo, Zahn-Waxler, Van Hulle, Robinson, and Rhee (2008) documented stable levels of experience sharing in the second year of life, and more recently Roth-Hanania, Davidov, and Zahn-Waxler (2011) demonstrated that this stability stretches even into the first year of life.

By comparison, mentalizing appears a more hard-fought developmental prize. Until a decade or so ago, research on theory of mind—which focused largely on children's understanding of targets' false beliefs—suggested that mentalizing came online between children's third and fourth birthday (Flavell, 1999). This trajectory was so consistent that some theorists assumed that it reflected the activation of a neurodevelopmental "module" for understanding others (Leslie, Friedman, & German, 2004). A major problem with this work, however, is that it often relied on children's verbal reports about their understanding of social targets, thus artificially constraining mentalizing to postverbal children. Removing this constraint, for instance, by using looking time to assess preverbal children's expectations about others' beliefs, has revealed mentalizing capacity much earlier in development, near children's first birthday (Onishi & Baillargeon, 2005; Surian, Caldi, & Sperber, 2007). Critically, however, there remains no evidence that mentalizing comes online as early as experience sharing.

Mentalizing also exhibits a more continuous trajectory across early development than experience sharing. For instance, although Roth-Hanania et al. (2011) documented stable levels of experience sharing between the ages of 6 and 18 months, they found that "hypothesis testing," or children's cognitive assessment of the reason for a target's pain, continued developing over that period. Further, the development of mentalizing abilities coincides with the advent of other "top-down" cognitive abilities such as response inhibition (Carlson & Moses, 2001; Wellman, Cross, & Watson, 2001), again suggesting that—unlike experience sharing—mentalizing develops only after some of its basic psychological "building blocks" fall into place.

Automaticity

A second difference between experience sharing and mentalizing is their level of behavioral automaticity. Experience sharing and mimicry can occur rapidly (Dimberg & Thunberg, 1998) and outside of awareness (Neumann & Strack, 2000). By contrast, mentalizing can be disrupted by the absence of attention and time. Interestingly, failures in mentalizing often reflect perceivers' incorrect assumption that their experiences are shared by social targets. For instance, when distracted or placed under time pressure, perceivers often wrongly infer that targets share their (perceivers') knowledge, beliefs, and emotions (Gilovich, Medvec, & Savitsky, 2000; Keysar, Barr, Balin, & Brauner, 2000). Under this model, mentalizing requires an "anchoring and adjustment" process in which perceivers begin with the egocentric assumption that they share states with targets, and effortfully correct that assumption in order to properly understand targets through mentalizing.[1]

Brain Systems

Experience sharing and mentalizing also diverge based on the neural systems underlying each process. Since the discovery of so-called mirror neurons over two decades ago (di Pellegrino, Fadiga, Fogassi, Gallese, & Rizzolatti, 1992; Rizzolatti & Sinigaglia, 2010), the neuroscience of experience sharing has been dominated by a simple but powerful insight: When observing targets experiencing motor, sensory, and affective states, perceivers exhibit patterns of brain activity similar to those they would evince if experiencing those states themselves. This property—which we term "neural resonance"—characterizes activity across a number of brain regions, including those involved in motor actions (Iacoboni et al., 1999), somatosensation (Keysers, Kaas, & Gazzola, 2010), and affective states such as pain, disgust, and reward (Lamm, Decety, & Singer, 2011; Morelli, Sacchet, & Zaki, 2015; Wicker et al., 2003; Zaki, Lopez, & Mitchell, 2014; Zaki & Ochsner, 2011).

In our view, neural resonance reflects a more general property of the brain: embodied, or "grounded" cognition. Numerous demonstrations suggest that cognitive representations and linguistic descriptions of internal states produce patterns of brain activity consistent with sensorimotor and visceral representations (Barrett & Satpute, 2013; Barsalou, 2008). For instance, remembering or imagining visual percepts produces activity in the visual cortex (Kosslyn & Ochsner, 1994; Wheeler,

Petersen, & Buckner, 2000). Likewise, linguistic terms associated with movements (e.g., "bite" or "kick") produces activity in patches of the motor cortex associated with those movements. It stands to reason, then, that such mechanisms should also apply to the observation of states in others. Such "perception–action coupling" (Dijksterhuis & Bargh, 2001; Preston & de Waal, 2002) thus likely connects experience sharing to other forms of grounded cognition.

Mentalizing exhibits a very different neural profile: typically engaging midline cortical structures such as the medial prefrontal cortex (MPFC) and posterior cingulate cortex, as well as the lateral temporal and inferior parietal cortex, and the temporoparietal junction (TPJ; Mitchell, 2009; Saxe, 2006; Zaki & Ochsner, 2012). At least some evidence indicates that regions within this network are engaged by dissociable features of mentalizing. For instance, the MPFC appears broadly responsive to information about mental states, whereas the TPJ responds more selectively to inferences about others' false beliefs (Saxe & Powell, 2006). This could reflect the TPJ's broader role in orienting to new and unexpected information (Corbetta, Patel, & Shulman, 2008; Mitchell, 2008), or holding multiple representations in mind simultaneously.

Interestingly, brain activity related to mentalizing also characterizes a number of other psychological phenomena, including autobiographical memory, prospection into the future, and mental navigation (Spreng, Mar, & Kim, 2009). These data speak to common mechanisms, such as the need to project one's self out of the "here and now" and imagine distal times, places, or perspectives. These phenomena likely share common psychological features—for instance, the need to reason about probabilistic or "fuzzy" outcomes—that unite them with mentalizing (Buckner & Carroll, 2007).

Further, the set of brain regions associated with mentalizing and other forms of self-projection differs from other systems in the brain in that it is stably active at rest. As such, this system is often referred to as the brain's "default network" (Raichle et al., 2001). The default network comprises multiple subsystems, some of which appear maximally relevant to mentalizing (Andrews-Hanna, Reidler, Sepulcre, Poulin, & Buckner, 2010). However, the overlap of this network with regions implicated in mentalizing and self-projections provides intriguing evidence that individuals at rest might tend to engage in these forms of thinking, including consideration of others' minds (Mason et al., 2007).

Critically, the systems of brain regions engaged by experience sharing and mentalizing are almost entirely nonoverlapping. This dissociation is evident not just across studies but also within studies. For instance, orienting perceivers toward lower-level motor and sensory features of targets' experience engages areas associated with experience sharing, whereas orienting them toward targets' high-level intentions produces engagement in brain areas associated with mentalizing (Spunt, Falk, & Lieberman, 2010; Spunt & Lieberman, 2012; Wheatley, Milleville, & Martin, 2007). Likewise, damage to structures associated with neural resonance produces impairments in experience sharing, whereas damage to regions associated with self-projection (such as the MPFC) produce impairments in mentalizing (Shamay-Tsoory et al., 2009). Together, these data once again suggest a powerful separation among empathic subprocesses.

Disorders

A final way in which mentalizing and experience sharing dissociate is through their differing profiles of dysfunction in psychiatric illness. The most famous such dissociation, highlighted by Blair (2005, 2008), separates autism spectrum disorders (ASDs) from psychopathy. Individuals with ASD exhibit circumscribed difficulties in mentalizing, accompanied by altered patterns of activity in brain systems associated with this empathic subprocess (Philip et al., 2011). They also exhibit reduced spontaneous mimicry, blunted engagement of relevant musculature, reduced mu-supression (an electroencephalogram [EEG] signal associated with motor resonance), and reduced mirror neuron system activity when observing target actions (Dapretto et al., 2006; McIntosh, Reichmann-Decker, Winkielman, & Wilbarger, 2006; Oberman, Ramachandran, & Pineda, 2008), indicating a reduction in low-level sharing of motor intentions. Interestingly, however, these abnormalities are not consistently accompanied by deficits in affect sharing. Instead, children and adults with ASD often exhibit typical levels of distress and concern in the presence of target suffering, and demonstrate typical levels of neural resonance for affective states such as pain (Hadjikhani et al., 2014).

By contrast, individuals with psychopathy are often able to understand others' states, but fail to share those states or exhibit typical levels of neural resonance (Meffert, Gazzola, den Boer, Bartels, & Keysers, 2013), producing a behavioral pattern of callous disregard for others' well-being. In fact, the ability to mentalize while unfettered by experience

sharing can be a recipe for socially manipulative behavior. For instance, individuals high in "narcissistic exploitativeness," who self-report a tendency to use others for personal gain, exhibit higher than average levels of interpersonal accuracy, consistent with intact and even superior mentalizing ability (Konrath, Corneille, Bushman, & Luminet, 2013).

Summary

These data support the idea that empathy, rather than being a monolithic phenomenon, instead constitutes a constellation of psychological processes, including mentalizing and experience sharing. These processes are impressively separable, based on their developmental trajectories, cognitive features, underlying neural systems, and pattern of dysfunction in disordered populations. That said, the holistic experience of empathy, and the behavior it produces, likely involves a densely intermingled deployment of both processes. It is to this idea that we now turn.

Nonindependence of Empathic Processes

Cases in which psychological processes *can be* dissociated can tempt readers into the inference that those processes are *always* independent. This type of logic is often wrong, however, and the case of empathy is no different. Despite the splits between experience sharing and mentalizing we describe above, measuring empathy in realistic contexts and examining its most important "downstream" consequences reveals that these processes are deeply interconnected.

Naturalism

As with so much of psychology (Neisser, 1976; Rozin, 2001), the study of empathy reflects a tension between experimental control and naturalism (see also Zaki, 2013; Zaki & Ochsner, 2009, 2012). On the one hand, elucidating empathy's structure requires employing paradigms in which the different facets of empathy can be elicited and studied as cleanly and independently as possible. For instance, neuroscientists examining experience sharing often present subjects with decontextualized nonverbal displays of target affect (e.g., images of targets experiencing pain), and do not ask perceivers to draw explicit inferences about targets' experiences based on those cues. By contrast, studies of mentalizing typically ask perceivers to draw just such inferences, often based on "higher-level" social cues, such as written descriptions of the situation in which a target finds him- or herself. These methodological disparities make it unsurprising when previous studies isolate nonoverlapping areas associated with each empathic process. To wit, they are designed to do so.

However, the vast majority of empathic episodes outside the narrow context of the laboratory do not feature isolated "pieces" of social information. Instead, perceivers most often encounter cues that are multimodal (occurring over multiple informational channels), dynamic (changing over time), and contextually embedded (such that interpreting one cue requires processing of other, concurrent or temporally antecedent, social information). Recently, a spate of neuroscientific studies of empathy has employed more *naturalistic* social stimuli that contain these features (e.g., videos of targets explaining their experiences or live interactions between perceivers and targets). These studies have consistently revealed concurrent engagement of brain regions associated with both mentalizing and experience sharing (Redcay et al., 2010; Schilbach et al., 2013; Zaki, Weber, Bolger, & Ochsner, 2009), as well as connectivity across the brain networks supporting both processes (Lombardo et al., 2010; Zaki, Ochsner, Hanelin, Wager, & Mackey, 2007). Together, such data suggest that although empathic processes are separable, in everyday situations empathy likely comprises an interactive deployment of both processes (Keysers & Gazzola, 2007; Shamay-Tsoory, 2011; Uddin et al., 2007).

Accuracy

Another way to probe interactions between empathic subprocesses is by examining the predictors of empathy's "downstream" consequences. Here, we discuss one such consequence: perceivers' ability to accurately infer targets' internal states (Funder, 1995; Ickes, 1997). Accuracy in social contexts allows individuals to effectively interact with others—whether those interactions entail coordinated cooperation or outsmarting others in competitive settings (Byrne & Whiten, 1988; Tomasello, 2000)—and predicts adaptive outcomes in a number of contexts, such as the success of close relationships and positive adjustment in adolescents (Gleason, Jensen-Campbell, & Ickes, 2009; Verhofstadt, Buysse, Ickes, Davis, & Devoldre, 2008).

As with naturalistic empathic settings, accuracy appears not to be scaffolded by *either* experience

sharing or mentalizing, but rather by a combination of both processes (Zaki & Ochsner, 2011). Intuitively, the connection between mentalizing and accurate social inferences appears clear; after all, accuracy often requires "thinking through" what a perceiver likely feels given his or her displays and context, given sufficient time and attentional resources (Epley et al., 2004; Keysar et al., 2000). Neuroimaging investigations likewise reveal that brain areas associated with mentalizing track the complexity (Hampton, Bossaerts, & O'Doherty, 2008) and accuracy (Zaki et al., 2009) of inferences about others.

However, intuitive processes, including experience sharing, also scaffold interpersonal accuracy, in some cases more quickly and efficiently than mentalizing. As discussed above, perceivers quickly take on targets' facial expressions, postures, and moods. Such sharing, in turn, allows perceivers to "read out" their own internal states as cues about what targets might be feeling. And indeed, mimicry—whether it is measured or manipulated across individuals—tracks reaction time and accuracy in interpreting nonverbal emotion cues such as facial expressions (Blairy, Herrerea, & Hess, 1999; Hess & Blairy, 2001; Neal & Chartrand, 2011).

We have used neuroimaging to further examine the role of experience sharing and mentalizing in supporting accurate inferences, using an empathic accuracy paradigm (Ickes, 1997; Zaki & Ochsner, 2011). In our protocol, perceivers were scanned using functional magnetic resonance imaging (fMRI) while they viewed videos of targets describing emotional autobiographical events. Critically, targets had previously viewed videos of themselves describing these events and used a rating dial to continuously report how positively or negatively they had felt at each moment while talking. Perceivers then used the same rating scale to infer how they believed targets felt, allowing us to use time series correlations between perceiver guesses and target self-reports as quantitative measures of accuracy. This approach revealed that areas in the so-called mirror neuron system, associated with mimicry and shared experience, as well as areas classically associated with mentalizing, both tracked the accuracy of perceivers' inferences on a video-by-video basis (Zaki et al., 2009).

It is important to note that although both mentalizing and experience sharing both support accuracy, they might do so more or less depending on the context. For instance, experience sharing affords a powerful window into targets' internal states, but only to the extent that perceivers believe their own minds are reasonable templates through which to understand targets. Similarity often determines whether or not this is the case. For instance, if a Bostonian perceiver and a New Yorker target both attend the Democratic National Convention, the perceiver's own states are probably useful in understanding how the target will feel about politics, but not about baseball (where the vicious Yankees–Red Sox rivalry likely divides them).

Both behavioral and neuroimaging approaches confirm the bounded nature of perceivers' tendency to deploy experience sharing, and the utility of doing so. For instance, perceivers who are similar to targets along important dimensions (e.g., political orientation) or share relatively minimal group assignments (e.g., based on preference for a television show) assume that their own preferences and mental states track targets' own (Ames & Kammrath, 2004). Likewise, perceivers who are similar to, but not dissimilar from, targets deploy neural resonance when watching targets perform movements (Aziz-Zadeh, Sheng, Liew, & Damasio, 2011), thinking about target preferences (Jenkins, Macrae, & Mitchell, 2008; Mitchell, Macrae, & Banaji, 2006), and observing targets' affective states (Mobbs et al., 2009; Singer et al., 2006; Xu, Zuo, Wang, & Han, 2009). Perceivers' "tuning" of experience sharing based on similarity further appears to be an adaptive strategy: perceivers' use of their own states to understand targets improves accuracy only when overall perceiver–target similarity is high (Hodges, Kiel, Kramer, Veach, & Villanueva, 2010; Neyer, Banse, & Asendorpf, 1999).

Overall, these data support two key points: (1) accuracy demonstrates the joint utility of both experience sharing and mentalizing in accurately understanding others; and (2) each of these processes' relationship to accuracy depends on contextual factors, such as overall similarity between targets and perceivers.

Prosocial Motivation as Both a Component and a Consequence of Empathy

Psychological phenomena are typically not idle, but rather serve important adaptive behaviors. Put more succinctly, thinking is for doing (Fiske, 1992). Empathy is no exception, and instead supports humans' vital cooperative and generous behavior through *prosocial motivation*, or perceivers' desire to help one another. Interestingly, research-

ers have described prosocial motivation both as a *component* of empathy, akin to experience sharing and mentalizing (Davis, 1994; Batson, 2011; Zaki & Ochsner, 2011), and as a *consequence* of these other two processes (Tomasello, Carpenter, Call, Behne, & Moll, 2005). We believe these two approaches dovetail nicely: prosocial motivation can be considered a component of empathy that flows from mentalizing and experience sharing. This is because individuals who vicariously share and also understand others' states should naturally come to care about targets' states. Interestingly, experience sharing and mentalizing might comprise dissociable routes to prosocial behavior, and it is to this idea that we now turn.

As has been recognized at least since Adam Smith's (1790/2002) *The Theory of Moral Sentiments*, experience sharing can produce powerful and even instinctive prosocial motivation (Zaki & Mitchell, 2013). Consider a perceiver who witnesses a friend in pain and has the option of helping that friend through a personally costly prosocial act. To the extent that the perceiver experiences self–other overlap with that target, the target's pain will produce vicarious distress in the perceiver. In many cases, such shared affect renders the psychological burden (in the form of shared pain) of *not helping* the target greater than that of helping.

Classic and contemporary work has leveraged knowledge about conditioning to demonstrate that (1) perceivers can be conditioned to fear or enjoy neutral stimuli that are paired with punishment or rewards delivered not to the perceiver him- or herself, but to a social target (Berger, 1962; Olsson & Phelps, 2007; Vaughan & Lanzetta, 1980); and (2) both humans and monkeys can be instrumentally conditioned to repeat a response simply because it decreases a target's suffering (Wechkin, Masserman, & Terris, 1964; Weiss, Buchanan, Altstatt, & Lombardo, 1971). Connecting these two ideas, Krebs (1975) demonstrated that individuals who displayed the strongest physiological reactions to others' distress (a proxy for the experience of shared affect) also were most willing to provide costly help to those targets. Cialdini and colleagues built on this model by documenting cases in which perceivers' sense of overlap with social targets predicts the costs they are willing to incur to help those targets (Cialdini, Brown, Lewis, Luce, & Neuberg, 1997; Cialdini & Kenrick, 1976; Cialdini et al., 1987). More recently, neuroscientists have documented cases in which self–other overlap measured through neural resonance predicts prosocial behavior. For instance, perceivers' engagement of brain areas associated with distress while seeing targets' misfortune (Hein, Silani, Preuschoff, Batson, & Singer, 2010), and with reward while observing targets' gains (Harbaugh, Mayr, & Burghart, 2007; Hare, Camerer, Knoepfle, & Rangel, 2010; Zaki et al., 2013), both predict individuals' willingness to later help those targets.

Mentalizing has also long been connected with prosocial motivation. Batson and others (Batson, 1991, 2011; Tomasello et al., 2005) have argued that prosociality fundamentally relies not only on individuals' sense of psychological overlap with each other, but also on perceivers' ability to represent the content of targets' minds through mentalizing. This idea is supported by evidence that explicit instructions to mentalize about targets increases perceivers' subsequent prosocial behaviors (Batson, Early, & Salvarani, 1997; Sturmer, Snyder, & Omoto, 2005). By contrast, dehumanization—people's unfortunate tendency to deny complex mental states to targets from other social groups—results in "sparse" inferences about outgroup targets' minds (Waytz, Gray, Epley, & Wegner, 2010), reductions in brain activity associated with mentalizing (Harris & Fiske, 2007), and reduced prosociality (Cuddy, Rock, & Norton, 2007). Finally, mentalizing-related brain activity during an impression formation task predicts later prosociality toward targets (Waytz, Zaki, & Mitchell, 2012), further suggesting that explicit consideration of targets' minds scaffolds our tendency to help.

The foregoing evidence thus points to two mechanisms underlying prosociality, which connect with experience sharing and mentalizing, respectively. As with accuracy, these data highlight the idea that downstream consequences of empathy cannot be reduced to a single empathic process, but rather require understanding how empathic components interact and combine.

The relationship among mentalizing, experience sharing, and prosocial motivation, though powerful, is by no means simple or monotonic. For instance, although experience sharing often compels perceivers to help targets, it can do so in ways that are demonstrably suboptimal. This is because experience sharing is most often elicited by the perception of clear (i.e., nonambiguous), nonverbal cues about individuals' joy or suffering (e.g., facial expressions). As such, this process can skew perceivers toward helping only when they have direct access to such cues. This produces a number of biases, such as perceivers' tendency to feel more

empathy for the suffering of one person than the suffering of a group (the "identifiable victim effect"; Small & Loewenstein, 2003). These biases have spurred some theorists to argue that experience sharing constitutes an unreliable source of moral and prosocial behavior (Bloom, 2013; Prinz, 2011).

Mentalizing likewise has a complex relationship with prosociality. Consider the case of intergroup interactions. In some instances, taking the perspective of an outgroup target can increase perceivers' prosociality (Sturmer et al., 2005). However, in more fraught intergroup contexts, mentalizing with targets can promote *antisocial* behavior or attitudes. For instance, perceivers who mentalize about a target with whom they are competing may realize that target is likely to take advantage of them, and preempt their own losses by first acting antisocially themselves (Epley, Caruso, & Bazerman, 2006; Pierce, Kilduff, Galinsky, & Sivanathan, 2013). For individuals from low-power groups entangled in conflict (e.g., Palestinians), mentalizing about higher-power conflict groups (e.g., Israelis) can likewise intensify, not soften, their conflict-related negative attitudes (Bruneau & Saxe, 2012). Together, these data suggest that both experience sharing and mentalizing can support prosociality, but by no means always do so.

New Directions in Empathy Research

Having sketched the basic mechanisms underlying empathy and their interactions with one another, we now turn to two emerging, interconnected themes we see as important to the future of empathy research and theory.

The Motivated Nature of Empathy

One common assumption about empathy, and experience sharing in particular, is that it is deployed automatically in the presence of target emotions, and generally "happens to" perceivers. This view also constitutes a common thread uniting early and contemporary theories of empathy (see Zaki, 2014, for a review). Automatic models draw support from many demonstrations (some described above) that experience sharing and mimicry indeed occur quickly and outside of awareness. Any of us who have been unlucky enough to witness someone suffer a horrible injury, for instance, can attest to the seemingly unstoppable nature of vicarious distress. However, the fact that a process can be deployed automatically does not mean that perceivers have no recourse to alter empathic episodes based on their desires and motives.

Instead, ample evidence suggests that—as with emotions more generally (Tamir, 2009)—people have strong motives surrounding their experience of empathy.[2] For instance, perceivers often want to *avoid* empathy when it promises to be painful or costly, or when they interact with outgroup targets, or to *approach* empathy when it facilitates important social goals like relationship formation and maintenance. Also like with other emotions, perceivers carry out their motives to feel or not feel empathy through a number of regulatory strategies (Ochsner & Gross, 2005). For instance, if a perceiver anticipates that interacting with a target (e.g., a terminally ill patient) will provoke painful amounts of empathy, he or she can avoid that target altogether, in an interpersonal analogue of "situation selection" (Gross, 2002). Likewise, perceivers often cannily change their perception of targets' affective states, for instance, by reducing their attention to or reappraising the suffering of outgroup targets, thus making it easier to harm those targets (see Zaki, 2014, for a systematic review of empathic regulatory strategies).

Acknowledging empathy's motivated nature extends prior models, for instance, suggesting that some cases of empathic failure (e.g., in clinical populations and intergroup contexts) do not necessarily signal *inabilities* to empathize, but rather reduced motivation to do so. This further suggests that intervention approaches aiming to increase empathy should focus not only on training empathic skills, but also on changing perceivers' motives to feel empathy, for instance, by emphasizing social norms or personal values that encourage empathy (Arieli, Grant, & Sagiv, 2013; Tarrant, Dazeley, & Cottom, 2009). In a recent, allied approach, Schumann, Zaki, and Dweck (2014) induced individuals to believe either that empathy is a stable and unchangeable trait (an *entity mind-set*), or that empathy varies as a function of effort (an *incremental mind-set*). In prior research, incremental, as compared with entity, mind-sets increase individuals' motivation to expend effort under challenging situations (Dweck, 2006). Consistent with a motivated approach to empathy, incremental mind-sets likewise increased perceivers' willingness to engage with targets under challenging circumstances, for instance, when empathy promised to be affectively painful, or when perceivers encountered outgroup targets. In the future, motivated models should complement automatic views to build scientific understanding of when empathy fails and how it can be increased.

There Is No Ideal "Set Point" for Empathic Experience

A second evolving idea in the world of empathy research concerns the assumption that empathy is always desirable. People by and large believe that empathy ranks among other positive traits (on par with, e.g., friendliness or intelligence) in qualifying someone as a good person (Schumann et al., 2014). And indeed, empathy provides a vital emotional underpinning for all manner of adaptive social behavior. However, this does not imply that empathy is always a positive force, either for social perceivers or targets. This is especially true when empathic components are divorced from one another. As described above, psychopathy and intergroup competition mark two cases in which perceivers who deploy mentalizing in the absence of experience sharing can use their understanding of targets to cajole, manipulate, or even maximally harm other people (Konrath et al., 2013; Nozaki & Koyasu, 2013). Likewise, experience sharing can often backfire, for instance, allowing perceivers in competitive interactions to be taken advantage of (Gilin, Maddux, Carpenter, & Galinsky, 2013).

In addition to not always aiding interpersonal interactions, empathy can also be emotionally exhausting for perceivers. Imagine, for instance, walking down a Manhattan street while vicariously experiencing the affective states of everyone around you. This state of affairs would become unsustainable in minutes. Many people in careers that require common contact with others' suffering exemplify how difficult empathy can be for perceivers. Although it has yet to be studied rigorously, caretakers, clinicians, and medical professionals report widespread "empathy fatigue," or a sense of being overwhelmed by others' suffering (Figley, 1995, 2002).

We believe that the potentially deleterious effects of empathy should receive more attention in both basic and applied research. Consider the growing movement of interventions aimed at modulating empathy. Almost all such interventions seek to increase individuals' empathic responses, using methods derived from theory, religious practices, and/or basic science (Gordon, 2009; Weng et al., 2013). Such efforts are crucially important, but should be complemented by efforts to modulate empathic experience in other ways. In particular, we believe that perceivers could benefit from training in how to *regulate* empathy, increasing it when it is needed but also decreasing it when it proves overwhelming or maladaptive. Such regulation will be served by understanding that empathy—although a vital and powerful affective force—does not have an ideal set point.

Relationships between Empathy and Other Emotional States

One deep but unanswered question surrounds the extent to which empathy resembles—or can be reduced to—other, "intrapersonal" emotions. At first blush, experiencing an emotion one's self and observing that emotion in someone else appear dissociable in at least two ways. First, emotion experience, but not observation, appears to include *components*—such as visceral arousal—that can only be experienced in the first person. If this is the case, empathic experiences should require an inferential step that personal emotion does not. Second, personal emotion and empathy appear responsive to different *sources*: one's own experiences in the case of personal emotion versus a social target's emotion in the case of empathy. As Hoffman (1984) put it, empathy represents an emotional reaction in a perceiver that is more appropriate to a target's experience than to the perceiver's own. These apparent distinctions play into the relatively distinct treatment that emotion *experience* and emotion *perception* have received in existing research and theory.

Upon closer examination, however, these distinctions break down. Like other distinctions between self- and other-perception (Bem, 1967; Nisbett & Wilson, 1977), personal emotion might not feature privileged insight into one's own internal states. Indeed, appraisal and conceptual act theories hold that emotional experience occurs through a process of interpretation, through which people apply concepts to decipher core affective cues such as arousal (Barrett, 2013; Scherer, Schorr, & Johnstone, 2001). Similar processes characterize perception of others' emotions (Barrett, Lindquist, & Gendron, 2007; Nook, Lindquist, & Zaki, 2015) and empathy more broadly. In fact, experience sharing and mentalizing tightly parallel core affect and conceptualization as laid out in Barrett's conceptual act theory. In particular, experience sharing provides initial affective and visceral inputs, which perceivers combine with conceptual information they glean through mentalizing to draw inferences about targets' states. In addition to its basic structure, empathy shares parallels with personal emotions in domains of motives and regulation. As described above, individuals desire to feel (or not feel) empathy just as they do with other emotional states (Tamir, 2009; Zaki, 2014), and likewise regulate empathic states in ways that par-

allel so-called intrapersonal emotion regulation (Ochsner & Gross, 2005; Zaki & Williams, 2013).

Broadly, empathy shares many features with other forms of emotion, but existing work has yet to directly compare the structure of personal emotional experiences with that of interpersonal affect. This will be an exciting and—we hope—synthetic direction for future research.

Conclusions

The study of empathy represents a centuries-old tradition that nonetheless continues changing rapidly through the advent of both new techniques and ideas. Further uncovering the cognitive and affective structure of this phenomenon will be crucial to understanding the ways in which interpersonal affect shapes social interactions.

Notes

1. The use of self-projection does not, of course, *always* lead perceivers astray. For instance, when perceivers and targets are highly similar, perceivers are more likely to project their own states onto targets (Ames, 2004), and more likely to accurately understand targets by doing so (Neyer et al., 1999). This type of projection, however, is less robust to context than mentalizing.
2. Importantly, motives—and the way they are carried out—operate at both explicit and implicit levels, and individuals often experience and act on even nonconscious motives (Gyurak, Gross, & Etkin, 2011; Williams, Bargh, Nocera, & Gray, 2009).

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