



Testing alternative models of dispositional empathy: The Affect-to-Cognition (ACM) versus the Cognition-to-Affect (CAM) model



Jacob Israelashvili^{a,b,*}, Rachel Karniol^a

^a School of Psychological Science, Tel Aviv University, Israel

^b Department of Social Psychology, University of Amsterdam, Netherlands

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ABSTRACT

Discussions of empathy generally implicate both affective and cognitive processes; however, their relative contribution remains unclear. The current study examined two competing models to explain the antecedents of empathy: one in which affective processes lead to cognitive ones (ACM: Affect-to-Cognition Model), and the other in which cognitive processes lead to affective ones (CAM: Cognition-to-Affect Model). To compare the relative power of each conceptual model, re-analyses of three previously-published data sets that were originally used to validate the IRI scale (Davis, 1980) with English, Spanish, and Dutch-speaking respondents, were performed. Results of the structural equation modeling (SEM) analyses yielded stronger support for the Affect-to-Cognition (ACM) model, with one facilitating factor (Empathic Concern) and one inhibitory factor (Personal Distress). Further analyses indicate that the ACM model is also robust in accounting for differences between men and women. Implications for theory and further research on empathy are discussed.

1. Introduction

The significance of empathy to human social functioning and personal wellbeing is well-accepted (e.g., Eisenberg & Eggum, 2009), yet there is much less agreement as to the definition of empathy and its principal antecedents. For example, Batson (2009) identified eight different phenomena that are discussed under the title of empathy. The current study focused on exploring whether empathy as assessed by the Interpersonal Reactivity Index (IRI) (Davis, 1980) is primarily a cognitively-driven or an affectively-driven process.

1.1. Unicentric (core dimensional) definition of empathy

In the literature, there are two general approaches to defining empathy (for a review see Shamay-Tsoory, Aharon-Peretz, & Perry, 2009; Dvash, & Shamay-Tsoory, 2014), differing mainly with regard to the relative role attributed to the cognitive versus the affective components of empathy. Whereas one approach to defining empathy suggests that cognitive processes are prerequisites for affective responses (e.g., Baron-Cohen, 2005), the other approach suggests that affective reactions precede cognitive processes (e.g., Eisenberg & Strayer, 1987). Those who advocate that cognitive processes are primary define empathy as “a leap of imagination into someone else’s headspace” (Baron-Cohen, 2005, p. 170), with affective reactions being possible

consequences of such a leap. From this perspective, then, empathy is a cognitive process of imaginatively putting oneself into another person’s psychological perspective (e.g., Stueber, 2006), with this process possibly leading to affective reactions. In contrast, proponents of the primacy of affect in empathy (e.g. Eisenberg & Strayer, 1987), view empathy as an affective response to another person’s plight. According to some proponents of this view, affective responses are *automatically* evoked in reaction to another’s plight (e.g., Preston & Hofelich, 2012). That is, individuals involuntarily experience others’ emotional states, unless such responses are inhibited (Preston & de Waal, 2002). In line with this conception, Hoffman (1975) defines empathy as the “involuntary, at times forceful, experiencing of another person’s emotional state”, elicited by expressive cues that directly reflect the others’ feelings or by other kinds of cues that “convey the affective impact of external events on him” (p. 138). Observers’ reactive affective experiences are largely due to the similarity between the distress cues of the target person and stimuli associated with their own distress experiences in the past. When the target’s emotional display is directly visible, mimicry of the target’s facial expression can activate the observer’s concordant subjective emotional states and further enhance the feeling of empathy (Dimberg, Andréasson, & Thunberg, 2011; Hawk, Fischer, & Van Kleef, 2011). Thus, according to this conception, deliberate cognitive processes, to the extent that they occur, are secondary to the affective ones, and are dependent on the development of several cognitive processes,

* Corresponding author at: School of Psychological Sciences, Tel Aviv University, Tel Aviv 69978, Israel.
E-mail address: jacobise@post.tau.ac.il (J. Israelashvili).

all of which converge to facilitate taking the perspective of the other person. Support for such a conceptualization comes from neuroscience research (e.g., Zaki & Mitchell, 2013), which shows that exposure to others' emotional facial expressions is associated with brain patterns that are consistent with experiencing these states in oneself, a phenomenon Zaki and Ochsner (2015) discuss as *experience sharing* (Zaki & Ochsner, 2015).

1.2. Acentric (multidimensional) views of empathy

In contrast to the above views, according to the multidimensional view of empathy, whose major proponent is Davis (e.g., Davis, 1980, 1983a, 1994), both cognitive and affective processes are equally implicated in empathy. However, these are viewed as conceptually independent processes, with neither of these processes being primary over the other.

Based on this multidimensional conceptualization, Davis developed the widely used Interpersonal Reactivity Index (IRI; Davis, 1980, 1983b, 1994), generally recognized as a measure of *Dispositional empathy*. Dispositional empathy henceforth is an individual's preliminary tendency to cognitively and emotionally empathize with others (Davis, 1983b). The IRI has become the most commonly used scale to assess empathy. In fact, in PsycNet, there are > 2300 references associated with the Davis' IRI scale (as retrieved June 2017; paper record number <https://doi.org/10.1037/0022-3514.44.1.113>), with > 700 references during 2014–2016 only. The IRI has four subscales, two of them refer to cognitive processes: Perspective Taking (PT), the tendency to spontaneously adopt the psychological point of view of others in everyday life (“I sometimes try to understand my friends better by imagining how things look from their perspective”), and Fantasy (FS), the tendency to imaginatively transpose oneself into fictional situations (“When I am reading an interesting story or novel, I imagine how I would feel if the events in the story were happening to me”); the other two subscales refer to affective processes, including: Empathic Concern (EC), the tendency to experience feelings of sympathy and compassion for unfortunate others (“I often have tender, concerned feelings for people less fortunate than me”), and Personal Distress (PD), the tendency to experience distress and discomfort in response to extreme distress in others (“Being in a tense emotional situation scares me”).

Individual differences in empathic disposition as assessed by the IRI have been found to be responsive to other's situational distress and to be associated with physiological arousal (e.g. Kameda, Murata, Sasaki, Higuchi, & Inukai, 2012 [EC, FS]; van der Graaff et al., 2016 [EC, PT]), and with the pattern of neural activity (e.g. Singer et al., 2004 [EC]), and pain reports (e.g. Lamm, Batson, & Decety, 2007 [EC, PD]).¹

It should be noted though that while the IRI was originally developed, and practically used, to account for dispositional differences in empathy (e.g., Davis, 1983a; Knafo, Zahn-Waxler, Van Hulle, Robinson, & Rhee, 2008), several researchers have also used it as a situational scale, to assess variability in how people respond empathically in a particular contexts. For example, Michie and Lindsay (2012) administered the IRI in a pretest-posttest experimental design, to evaluate the effectiveness of an intervention (see also Császár, 2012; Hatcher et al., 1994; Newman, 1993). Moreover, Barnes and Lieberman (2017) have argued the IRI includes generic terms (such as “other people” and “someone”) which actually make the level of self-reported empathy dependent on the way these generic terms are interpreted by the person responding to the questionnaire. In their study, Barnes and Lieberman's participants were Democrats and Republicans who first completed the IRI as written to provide a baseline assessment, and subsequently they completed it either while being instructed to think

about their own group, or while being instructed to think about the out-group. Although the two groups did not differ in their baseline IRI scores, their baseline EC and PT subscales scores were strongly correlated with their respective in-group scores but only weakly correlated with their respective out-group scores. This study shows that IRI scores are a function of the generic targets participants have in mind when responding to the IRI scale. Thus, the above pattern of findings suggests that variance in IRI scores could be the result of either state empathy, trait empathy, or both.

Returning to the issue of the primacy of affective versus cognitive processes, in Davis' view, all four tendencies combine in accounting for an individual's experience of empathy, but Empathic Concern is deemed the most relevant in terms of its downward impact on prosocial behavior (Davis, 1983b). Yet Davis seems to be of two minds about this issue since there are generally significant correlations between scores on the Empathic Concern and Perspective Taking subscales of the IRI in both adults (e.g., Davis, 1983b) and adolescents (e.g., Karniol, Gabay, Ochion, & Harari, 1998). This would suggest that affective and cognitive processes may be on equal footing in the emergence of empathy. Support for this notion can also be found in recent studies in neuroscience, that have indicated interconnectivity and simultaneous neural activation of the affective and the cognitive regions of the brain (e.g., Lindquist, Wager, Kober, Bliss-Moreau, & Barrett, 2012), including co-activation of the experience-sharing and the mentalizing systems (Doré, Zerubavel, & Ochsner, 2015).

Yet this conclusion regarding the equal role of cognitive and affective process in empathy initiation may be premature since there is some evidence that the activation of cognitive and affective processes in empathy occurs sequentially rather than in parallel. For example, Batson and colleagues (e.g., Lamm et al., 2007; see also Myers, Laurent, & Hodges, 2014) showed that instructions to imagine how a needy other feels increase feelings of sympathy for the needy other, suggesting that cognitive processes may engender affective ones. However, other studies (e.g., van der Graaff et al., 2016; van Lissa et al., 2014) claimed the opposite to be the case, with not the cognitive component, but rather the emotional component, initiating empathy.

1.3. The current study

In light of the diverse and often contradictory results regarding the primacy of either cognitive or affective processes in the initiation of empathy, the goal of the current study was to explore the strength of two alternative models relating the cognitive and affective processes involved in dispositional empathy as assessed by the IRI. The first model, here labeled ACM (Affect-to-Cognition Model) builds on the definition of empathy as an affective process that may or may not engender subsequent cognitive processes. As such, this model can be viewed as cohering with models in which affect does not require cognitive processing (e.g., Zajonc & Markus, 1984) and with models of mood-dependent information processing (e.g., Isbell & Lair, 2013). The second model, here labeled CAM (Cognition-to Affect Model) builds on the definition of empathy as a cognitive process that may or may not engender subsequent affective processes. This model fits well with views of affect as arising subsequent to cognitive interpretations and appraisals (e.g., Lazarus, 1991), where such appraisals can result in the regulation and dampening of subsequent affective experiences. In this view, a stimulus does not have affective strength until after the individual has engaged in cognitive appraisal of the situation (e.g., Damasio, 2004) and consequently, priming with cognitive constructs can influence affect in a top-down fashion (Strauman & Higgins, 1987). If the former model holds, then in terms of the IRI, Empathic Concern and Personal Distress will jointly predict Perspective Taking and Fantasy *relatively* better than vice versa, whereas if the CAM model holds, Perspective Taking and Fantasy will jointly predict Empathic Concern and Personal Distress *relatively* better than vice versa. Of course, another possibility is that neither model holds. Specifically, neuroscience

¹ Note that these studies did not equally measure the four subscales of the IRI. Hence, the reader is advised to avoid any generalization regarding which subscale is more relevant and responsive to other's situational distress.

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