



Published in final edited form as:

*Soc Issues Policy Rev.* 2011 December 1; 5(1): 257–291. doi:10.1111/j.1751-2409.2011.01032.x.

## The Nonverbal Transmission of Intergroup Bias: A Model of Bias Contagion with Implications for Social Policy

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### Abstract

Social and policy interventions over the last half-century have achieved laudable reductions in blatant discrimination. Yet members of devalued social groups continue to face subtle discrimination. In this article, we argue that decades of anti-discrimination interventions have failed to eliminate intergroup bias because such bias is contagious. We present a model of bias contagion in which intergroup bias is subtly communicated through nonverbal behavior. Exposure to such nonverbal bias “infects” observers with intergroup bias. The model we present details two means by which nonverbal bias can be expressed—either as a veridical index of intergroup bias or as a symptom of worry about appearing biased. Exposure to this nonverbal bias can increase perceivers’ own intergroup biases through processes of implicit learning, informational influence, and normative influence. We identify critical moderators that may interfere with these processes and consequently propose several social and educational interventions based on these moderators.

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In June of 1998 James Byrd Jr., a black man, was beaten, chained to the back of a pick-up truck, and dragged for miles—his body literally torn to pieces (Cropper, 1998). In October of that same year, Matthew Shepard, an openly gay university student was beaten, tortured, and tied to a wooden fence, left to freeze to death (Brooke, 1998). And as recently as April 2010, three men used a hot wire hanger to brand a swastika into the arm of a disabled Navajo man (U.S. Attorney’s Office, 2010).

Hate crimes are disturbing and vivid examples of explicit discrimination. They violate the principles that have, for the last half-century, motivated a deluge of laws, educational programs, public service announcements, and other interventions aimed at eliminating discrimination. These interventions have largely been successful in reducing blatant one-on-one discrimination, including hate crimes. Yet accumulated patterns of inequality seem to contradict the relative paucity of blatant one-on-one discrimination. In North America, for example, toxic waste sites are unequally distributed near neighborhoods populated by racial minorities, the racial wealth-gap has quadrupled in three decades, and medically-necessary cardiac medications are less likely to be prescribed to racial minorities (Bullard, Mohai, Saha, & Wright, 2007; Shapiro, Meschede, & Sullivan, 2010; Smedley, Stith, & Nelson, 2003). Central and South American indigenous men earn as little as 1/3 of non-indigenous (White) men, Australian Aboriginal infants are twice as likely to be born pre-term compared to other Australian infants, and, on average, European citizens opine that their countries are worse off because of immigrants (de Ferranti, Perry, Ferreira, & Walton, 2004; Langridge, Nassar, Li, & Stanley, 2010; Zick, Pettigrew, & Wagner, 2008). In general, inequalities in income, access to housing, and health may be growing rather than receding (e.g., National Research Council, 2004; Pager & Shepard, 2008).

There is thus a contradiction between blatant one-on-one discrimination and harmful accumulated patterns of discrimination: the former has been greatly reduced while the latter

is holding strong. Contemporary theories of prejudice and discrimination address this contradiction by postulating that the explicit endorsement of egalitarianism is often betrayed by more subtly negative responses to people from other social groups (Dovidio, Kawakami, Johnson, Johnson, & Howard, 1997; Fazio, Jackson, Dunton, & Williams, 1995). These subtle responses are thought to drive equally subtle patterns of discrimination that only become obvious when accumulated (e.g., Crosby, 1982), as with the noted racial discrepancies in wealth, pre-term births, and proximity to toxic waste.

In this article, we argue for modern interventions that target the transmission of these subtle biases. The interventions we propose are based on a new model detailing the transmission of bias. We argue that subtle intergroup bias is unintentionally transmitted and maintained through nonverbal behavior in a process that we describe as “bias contagion”. We introduce a two-stage model of bias contagion that can be used to inform interventions for reducing bias contagion and perhaps intergroup bias more generally (see Figure 1).

After reviewing the successes and failures of existing anti-discrimination efforts, we present the first stage of our bias contagion model. The first stage includes two means by which nonverbal behavior becomes biased. Nonverbal bias can occur because negative outgroup attitudes are “leaked” through nonverbal behavior (*direct causation*) or because worries about appearing biased ironically cause nonverbal bias (*indirect causation*). The second stage of the model describes how exposure to nonverbal bias causes observers to adopt biased attitudes. Implicit learning, normative influence, and informational influence together characterize this second stage. Next, we propose interventions relevant to each stage of the model. Ultimately, we conclude that biases ranging from racism to homophobia can be greatly reduced through educational and training interventions targeting bias contagion.

## 20<sup>th</sup> Century Interventions for 21<sup>st</sup> Century Bias: Success and Failure

**Intergroup bias** is the tendency to respond more favorably to ingroups than outgroups (Hewstone, Rubin, & Lewis, 2002). Such favoritism is reflected in stereotypic beliefs, attitudes, and discriminatory behavior. As we review below, anti-discrimination policies have substantially reduced blatant expressions of intergroup bias while leaving more subtle forms of bias intact.

### Public Policy and Social Norms have Reduced Bias and Discrimination

Intergroup bias is as old as the human species (and perhaps older) and anti-discrimination interventions also have a long history. One clear and recent example of anti-discrimination efforts is legal intervention. The American Civil Rights Act of 1964 prohibited discrimination in all facets of employment, banned segregation in public spaces, including hotels, theaters, and restaurants, and outlawed discrimination in any institution that received federal funds, such as public schools, libraries, or museums. In following years, voting and housing discrimination were outlawed and protection was granted to additional groups such as people with disabilities, older adults, and in some cases, gay persons. Recognition for and punishment of discrimination is not limited to North America. For example, the Racial Discrimination Act of 1975 prohibited racial discrimination in Australia and Directives 2000/43/EC and 2000/78/EC in the European Union outlaw discrimination based on race, religion, disability, age, or sexual orientation with regards to public goods and services (housing, employment, social security, healthcare, and education).

Legal interventions are not the only strategies for reducing discrimination. Public service announcements (PSAs) denouncing intergroup bias have been repeatedly broadcast over television and radio and entire multimedia campaigns have been designed around reducing discrimination. For example, the European Union launched *For Diversity, Against*

*Discrimination* across 27 countries to inform people about anti-discrimination laws and the benefits of diversity. This campaign included online, print, and TV advertisements, seminars, sports events, and journalist and photo competitions (European Union, 2008). Beyond PSA's, public education has increasingly made tolerance an important component of school curricula (Johnson, 2003). For example, American schools have adopted curricula, such as *Facing History and Ourselves* or *Stop the Hate*, aimed at increasing awareness about diversity, examining discrimination, and reducing prejudice (U.S. Department of Education, 2008). And many organizations have adopted "diversity training" that is heavily predicated on the importance of *being* unprejudiced (Paluck, 2006; Stephan & Stephan, 2001).

For all these efforts, reductions in blatant discrimination have been observed in reports of housing discrimination (Ross & Turner, 2005), workplace discrimination (Tomaskovic-Devy et al., 2006), and employment discrimination (Moll, 1991; U.S. Merit Systems Protection Board, 2009). And strong social norms now exist regarding the inappropriateness of many (though not all) biases. For example, participants in one study believed it was clearly not OK to feel negatively toward social groups that were targets of anti-discrimination efforts, such as Black people, Jewish people, people with AIDS, or mentally or physically disabled people (Crandall, Eshleman, & O'Brien, 2002). Consistent with these norms, in the last half-century there have been dramatic declines in self-reported racism, sexism, homophobia, anti-semitism, and other biases (Anti-Defamation League, 2009; Davis, Smith, & Marsden, 2008; Dovidio & Gaertner, 1998; McHugh & Frieze, 1997; Pettigrew & Meertens, 1995; Quinley & Glock, 1979; Saad, 2010; Schuman, Steeh, Bobo, & Krysan, 1997; Sniderman & Carmines, 1997; Walker, 1994).

### **Public Policy and Social Norms have not Eliminated Bias and Discrimination**

For all the improvement in blatant discrimination, persistent income, housing, environmental, and health disparities between social groups still exist and in some cases, are worsening. In Bolivia, Mexico, and other Latin American countries, for example, indigenous men still earn only 35% to 65% of what White men earn (de Ferranti, Perry, Ferreira, & Walton, 2004). In the U.S., African Americans and Latinos earn 70 cents per dollar that whites earn and the wealth gap between Whites and minorities is increasing sharply (Shapiro, 2004; Shapiro, Meschede, & Sullivan, 2010). Worldwide, women are paid about 2/3 of what men are paid (e.g., Tzannatos, 1999). For example, despite the passage of the Equal Employment Opportunity Law in Japan in 1986, Japanese women earn only 60% of their male counterparts (Gelb, 2000). And American women earn only 77 cents per dollar that men earn (U.S. Census Bureau, 2009a), even after controlling for hours, occupation, parenthood, and other factors associated with pay (Dey & Hill, 2007).

Income disparities can be blamed in part (or in whole) on inequitable hiring and advancement processes. Audit studies, which send matched pairs of individuals who differ only on selected characteristics (e.g., gender, race, age) to real job openings, reveal significant gender, racial, and age discrimination in hiring (Bendick, Brown, & Wall, 1999; Bendick, Jackson, & Reinoso, 1994; Bertrand & Mullainathan, 2004; Booth, Leigh, & Varganoza, 2006; de Beijl, 2000; Heckman & Siegelman, 1992; Neumark, 1996; Pager, 2007). Once hired, upward mobility is a special challenge for women and minorities, who are underrepresented in top-level positions in corporations, law, and medicine (Baldi & McBrier, 1997; Calvert Investments, 2008, 2010; Eagly & Karau, 2002; Gelb, 2000; Melkas & Anker, 1997; U.S. Equal Employment Opportunity Commission, 2003; Wilson, Sakura-Lemessy & West, 1999).

Housing discrimination also continues to be prevalent. Black people, Hispanics, other ethnic minorities, and disabled individuals are typically shown a restricted set of properties, given less assistance with financing, and steered into poorer communities and neighborhoods with

more minority residents (Greek Helsinki Monitor, 2006; Harrison, Law, & Phillips, 2005; National Fair Housing Alliance, 2006; Ondrich, Ross, & Yinger, 2003; Phillips, 2010; Turner, Herbig, Kaye, Fenderson, & Levy, 2005; Turner, Ross, Galster, & Yinger, 2002). These minority-heavy neighborhoods (even high-income minority neighborhoods) are targeted by banks for deceptive or predatory loans, particularly in America, ultimately leading to high foreclosure rates and financial devastation in entire communities (Bocian, Ernst & Li, 2006; Powell, 2009; U. S. Department of Housing and Urban Development, 2000). Companies even target minority neighborhoods for toxic waste (Brulle & Pellow, 2006; Bullard, Mohai, Saha, & Wright, 2007; Martuzzi, Mitis, & Forastiere, 2010; Morello-Frosch & Jesdale, 2006; Ungvary, Odor, Benyi, & Szakmary, 2005).

Given these many obstacles to the “good life,” health disparities are hardly surprising. For example, Australian Aboriginal infants are twice as likely non-Aboriginal infants to be born pre-term and this difference has only increased over time (Langridge, Nassar, Li, & Stanley, 2010). Similarly, African American infants die at twice the rate of European American infants, and death rates from heart disease, breast cancer, lung cancer, and colorectal cancer are significantly greater for African American (James, Thomas, Lillie-Blanton, & Garfield, 2007). Even when factors such as insurance status, income, age, and symptom expression are taken into account, minorities are less likely than Whites to receive quality healthcare (Barata, de Almeida, Montero, & de Silva, 2007; Nazroo, 2003; Smedley, Stith, & Nelson, 2003; U.S. Department of Health and Human Services, 2010).

From heinous examples of hate crimes to employment, housing, and health disadvantages to implicitly-measured biases, it is clear that intergroup bias is alive and well. This is puzzling given the harsh legal and social penalties that, for decades now, have been levied against individuals who exhibit bias. This puzzle cannot be completely explained by functional theories of intergroup bias. For example, these theories often trace the function of intergroup bias back to the importance of maintaining ties with the ingroup (e.g., Brewer, 1991; Kurzban, Tooby, & Cosmides, 2001; Mahajan et al., 2011; Sidanius & Pratto, 1999), such that explicit consensual norms *against* bias should have undermined its existence. Moreover, it is difficult for these theories to explain the particular patterns of intergroup bias that emerge within specific cultures.

We instead propose that mechanisms of cultural transmission can help explain why bias remains an important social problem despite decades of anti-discrimination legislation and proscriptive social norms. Our argument is that people unintentionally transmit biases to one another through nonverbal behavior in what we refer to as *bias contagion*.

## Bias Contagion: What is it

Our model of bias contagion emphasizes the process of contagion as it pertains to nonverbal behavior. In this section we define nonverbal behavior, contagion, and bias contagion.

### Nonverbal Behavior and Nonverbal Bias

In keeping with early descriptions (e.g., Darwin, 1872), psychologists commonly use the term *nonverbal behavior* to refer to facial expressions, eye gaze, body language, and proxemics. All of these bodily configurations can be observed in the absence of a physical impact on the surrounding environment. Consequently, **nonverbal behaviors** are *non-linguistic behaviors without a physically instrumental purpose*. **Nonverbal bias** occurs when people exhibit relatively negative (less positive) nonverbal behavior toward specific social groups.

Nonverbal behavior is different from actions and verbal behavior. Whereas the influence of nonverbal behavior on the physical world requires other people, **action** is non-linguistic behavior that directly influences the physical world. Pushing open a door, moving a tool, and pulling the trigger of a gun are all behaviors that directly act upon and change a physical entity—hence, these are actions. Finally, **verbal behavior** is the content of speech or writing. Our focus is nonverbal behavior, which we regard as necessary for bias contagion.

### Bias Contagion

English dictionaries (Merriam-Webster, Oxford, and MacMillan) include two definitions for contagion, one for disease and one for psychological states. We argue that contagion describes a general process that can be applied to diseases and psychological states. Specifically, **contagion** is a transmission process that occurs given two necessary and sufficient conditions: (1) the expression of a personal state through living tissue and (2) exposure of a recipient to that living tissue. In contagion, an embodied state is transmitted from one person to another given the preconditions of bodily expression and simple exposure.

This definition of contagion emphasizes expression through living tissue of the host's body. A few disease examples are broken skin with protruding blood, mucus on skin within the nose, saliva on the tongue or lips, and so on. A few psychological state examples are configuration of skin on the face, configuration of the eyes, configuration of the head relative to neck, and so on. In both cases, contagion occurs via evolutionarily ancient media that predate language. Contagion is truly embodied social influence.

Our model of bias contagion therefore focuses on nonverbal behavior, according to the following definition: *bias contagion occurs when an individual adopts a psychological bias from simple exposure to nonverbal bias.*

### Bias Contagion: A Model and Evidence

Aside from their capacity for being transmitted through contagion, intergroup bias and infectious disease share other characteristics. Both are undesirable and in both cases, considerable effort has been put towards preventing their development. Interventions against infectious disease largely owe their success to a basic biological theory. Germ theory prompted successful social interventions such as water sanitization, education about the importance of washing, and other cleanliness activities. The success of these interventions is often over-looked by those who assume that vaccines and drugs account for the precipitous drop in American and European mortality from contagious disease during the 20<sup>th</sup> century. Yet the largest drops in mortality actually occurred *prior* to medical intervention *but following germ theory* (McKinlay & McKinlay, 1981), implicating the importance of social interventions based on germ theories. Just as the success of behavioral interventions against infectious disease depended on the introduction of an accurate theory of transmission, so too might the success of behavioral interventions against discrimination depend on the introduction of an accurate theory of transmission. This section details a two-stage model of bias contagion that we hope can provide a foundation for successful anti-discrimination interventions.

#### Stage One: Expression of Nonverbal Bias

We argued that the explicit messages conveyed through law, education, and media have effectively trickled-down to the populace, causing them to quiet or eliminate explicit expression of intergroup bias. Outright one-on-one discrimination has been greatly reduced over the last century (Kennedy, 1997; Klarman, 2004; National Research Council, 2004;

Ross & Turner, 2005) and in study after study Americans and Europeans report extremely low levels of bias (Anti-Defamation League, 2009; Dovidio & Gaertner, 2000; Schuman, Steeh, & Bobo, 1997; Sniderman & Carmines, 1997; Twenge, 1997). Yet subtle means of conveying intergroup bias were often left unaddressed in those anti-discrimination messages and the populace might have followed by not addressing their own, more subtle expressions of intergroup bias. For example, Ad Council, an American public service organization, launched a multimedia campaign in 2008 entitled “Think before you speak” to address the use of anti-gay language in teens. Using TV ads, radio, print, outdoor, and Web advertising, the campaign focuses on reducing and preventing homophobic language (Advertising Council, 2008). The campaign has resulted in laudable reductions in explicitly biased language (Advertising Council, 2009) but did not address nonverbal behavior and may thus inadvertently allow subtle expressions of bias to slip through the cracks.

Consistent with messages conveyed through the media, experiments with Western samples reveal that explicit and verbal discrimination are mostly absent but nonverbal bias is mostly present in one-on-one interactions involving heavyweight people, black people, disabled people, and other targets of bias (e.g., Apfelbaum, Sommers, & Norris, 2008; Avery, Richeson, Hebl, & Ambady, 2009; Comer & Piliavin, 1972; Crosby, Bromley & Saxe, 1980; Dovidio et al., 2002; Harris, Moniz, Sowards, & Krane, 1994; King, Shapiro, Hebl, Singletary, & Turner, 2006; Kleck, 1968). These experiments suggest that in the present and recent past, nonverbal bias is alive and well, even as explicit expressions of bias are considerably muted.

**Bias pathway one: Direct causation**—Widespread expression of nonverbal bias owes in part to the close relationship between affect and nonverbal behavior. For example, in *The Expression of the Emotions in Man and Animals*, Darwin (1872) argued that biological mechanisms associated with emotions directly influence nonverbal behavior. He writes, “terror causes the body to tremble. The skin becomes pale, sweat breaks out, and the hair bristles (p. 90).” Modern scholars influenced by Darwin’s approach argue that subcortical brain structures associated with emotion directly cause patterns of facial expression (e.g., Ekman & Friesen, 1969). By this view, facial expressions are directly caused by emotions. This approach is supplemented by a second theory which posits that affect arises from appetitive and aversive motivational systems (Lang, Bradley, & Cuthbert, 1990; Davidson, 2001). The aversive system promotes avoidant and protective processes whereas the appetitive system promotes approach-oriented consummatory processes. By this view, positive affect gives rise to appetitive nonverbal behaviors such as approaching and relaxed movement whereas negative affect gives rise to protective nonverbal behaviors such as avoidant movement and freezing.

A corpus of evidence is consistent with the idea that affective responses are typically reflected in nonverbal behavior. For example, negative affective responses indexed by subcortical activity precede a canonical example of protective nonverbal behavior—the startle reflex (see Davidson, 2001). Additionally, facial electromyography with European samples revealed that affective responses are immediately reflected in positive and negative facial expressions (Dimberg, 1990). Indeed, neural pathways associated with affective experience control facial muscles involved in “genuine” emotion expressions (Rinn, 1984). And there is evidence for culturally universal nonverbal expressions of affect, such as in facial expressions, interpersonal distance, and the startle reflex (Ekman, 1971; Izard, 1994; Lang et al., 2001).

The relationship between affect and nonverbal behavior likely plays a role in nonverbal bias. When adults have positive affect toward (i.e., like) something or someone, they tend to sit or stand near to it, move towards it, exhibit facial joy in response to it, and look at it (Chen &

Bargh, 1999; Dimberg, 1986, 1990; Mehrabian, 1969; Shimojo, Simion, Shimojo, & Scheier, 2003). When adults have negative affect toward (i.e., dislike) something or someone, they tend to sit or stand far from it, move away from it, and exhibit negative facial expressions in response to it (e.g., Chen & Bargh, 1999; Dimberg 1986, 1990; Mehrabian, 1969). Many of these relations are present for other species (e.g., Waller & Dunbar, 2005) and human infants (e.g., Tronick, 1989; Weinberg & Tronick, 1994), suggestive of a long ontogenetic and evolutionary history. Hence, positive and negative affect (i.e., attitudes) toward other people may often be observed as immediate nonverbal responses.

This sort of “direct causation” is implicated in nonverbal bias, such that biased attitudes predict biased nonverbal behavior. For example, Italian and German participants who scored higher than others on a reaction-time measure of race bias also exhibited less eye contact and more stiffness than others during inter-racial interaction (Hofmann, Gschwender, Castelli, & Schmitt, 2008). Other studies with American and European samples have shown that reaction-time measures of bias against a social group predicted less smiling (McConnell & Liebold, 2001), less nonverbal friendliness (Dovidio, Kawakami, & Gaertner, 2002), more negative nonverbal expressions (Richeson & Shelton, 2005) and more avoidant nonverbal behavior (Neumann, Hulslenbeck, & Seibt, 2004) toward that social group than toward others. In general, influential and biologically-informed theories of affect suggest that intergroup bias should be reflected in nonverbal behavior and existing evidence supports this position.

**Bias pathway two: Indirect causation**—Intergroup bias is not the only cause of nonverbal bias. In fact, nonverbal bias often appears in the absence of intergroup bias. First, unbiased individuals may worry about appearing biased and because of this anxiety, exhibit negative nonverbal behavior in the presence of certain groups. For example, Americans worried about appearing unbiased in inter-racial interaction are more likely to restrict movement (Shelton, 2003) and to exhibit nonverbal behavior that seems unfriendly (Norton, Sommers, Apfelbaum, Pura, & Ariely, 2006). We suggest that worries about appearing biased manifest as anxiety (as in Shelton, 2003), which leaks through nonverbal behavior (e.g., Norton et al., 2006).

Second, many people throughout Europe and the Americas believe that the best way to be unbiased is to avoid talking and thinking about social identity (cf. Apfelbaum et al., 2008; Verkuyten, 2005). These people endorse “colorblind” social norms and tend to suppress verbal comments about (a) appearance, (b) the relevant social dimension (e.g., race), and (c) stereotypical activities (e.g., black people and basketball). Yet these efforts at verbal suppression may ironically produce nonverbal bias. The suppression of thoughts and words about social identity is likely to be both effortful and unpleasant during intergroup interaction (for a review, see Richeson & Shelton, 2007). Indeed, in one study, to the extent that Americans endorsed “colorblind” social norms they were especially likely to both refrain from mentioning race and to exhibit negative nonverbal behavior toward outgroup members (Apfelbaum et al., 2008).

Finally, colorblindness norms might contribute to nonverbal bias in another way. Normative colorblind behavior prohibits the acknowledgment of social identity such that during interracial interaction, for example, people should be “blind” to race. The nonverbal cues that colorblind individuals do control during social interaction may be misguided attempts to appear colorblind. For these individuals, trying to appear colorblind likely includes averted gaze, bodily freezing, and negative facial responses to racial discussion. The intended message might be “My gaze is averted so I cannot see your social identity; I am not fidgeting or exhibiting nervous movement so your social identity clearly does not make me nervous; but I am upset by the discussion of race since it just is not important.” In short,

many of the mannerisms included in nonverbal bias might be intentionally enacted by people trying to appear colorblind.

**Summary: Pathways to nonverbal bias**—People may thus exhibit nonverbal bias whether or not they have the internal experience of intergroup bias. Indeed, the key for contagion, both with respect to disease and psychological states, is that the disease or psychological state exists on the host’s living tissue. People with inactive disease states are often regarded as “carriers” of disease—their blood, mucus, and so on is no less contagious than the blood and mucus of those with active disease states. Likewise, nonverbal bias is equally contagious for people with and without active intergroup bias.

### Stage Two: Exposure to Nonverbal Bias

Regardless of how it happens, nonverbal bias remains widespread. It has been documented in classrooms (Harris et al., 1994), shopping malls (King et al., 2006), and of course, in psychological laboratories (e.g., Dovidio et al., 1997; McConnell & Liebold, 2001). It thus seems likely that most people are exposed to nonverbal bias. To test this idea, recent research examined the prevalence of nonverbal bias on mainstream television (Weisbuch & Ambady, 2009; Weisbuch, Pauker, & Ambady, 2009). The average American, for example, watches around five hours of TV every day (Nielsen, 2009) and other countries are increasingly saturated with TV. Hence, to the extent that nonverbal bias appears on many widely-viewed television programs we can be fairly certain that millions of people are frequently exposed to nonverbal bias.

Weisbuch, Pauker, and Ambady (2009) examined nonverbal bias across 11 American programs that had (in total) well over 100 million weekly viewers. The programs that were examined were exemplary in the sense of including pairs of equal-status White and Black characters. Moreover, transcripts of these shows revealed an absence of verbally-communicated race bias. Thus, the television shows that were sampled portrayed an explicitly egalitarian context. Nonetheless, as compared to White characters, Black characters on these shows evoked significantly more negative nonverbal responses *from their co-characters*. These findings have been replicated across a different sample of 18 popular television shows with respect to intergroup bias against heavyweight women (Weisbuch & Ambady, 2009). In short, there is strong evidence that millions of people are frequently exposed to nonverbal bias via television.

That people are widely exposed to nonverbal bias may still seem a trivial fact when compared to prior times in which people were widely exposed to more blatant biases through actions and words. We agree that exposure to nonverbal bias is in many respects less harmful than exposure to explicit bias. However, we maintain that nonverbal bias is far from trivial. Our position is that nonverbal bias is one of the primary means by which intergroup bias remains a subtle yet substantial societal problem.

**Exposure to nonverbal bias: Social influence across species and age**—The perpetuation of intergroup bias through nonverbal bias has evolutionarily-ancient origins and may be a normal part of early human development. We here review the early and ancient origins of bias contagion and then describe the processes through which exposure to nonverbal bias is translated into observers’ own nonverbal biases.

From deer mice to human infants to human adults, there is consistent evidence that animals become biased in favor of or against other creatures through bias contagion. For example, non-human animals seem to “catch” biases from simple exposure to conspecifics’ nonverbal behavior. For these animals, biases are always against creatures that look and act differently from themselves—largely because these other creatures are different species. For example,



deer mice exhibit avoidance responses and preparatory analgesia to a novel class of flies but only if they have observed other deer mice respond negatively to these same flies (Kavaliers, Colwell, & Choleris, 2001, 2005). Findings like these can be observed across the animal kingdom (for a review, see Griffin, 2004). For example, young vervet monkeys come to categorize other creatures as predators (or “not predators”) on the basis of parents’ negative nonverbal responses to those creatures; consequently, these young vervet monkeys exhibit negative responses to these predators (Cheney & Seyfarth, 1990). Likewise, rhesus monkeys develop a fear of snakes after observing conspecifics’ fear responses to snakes (e.g., Mineka, Davidson, Cook, & Keir, 1984).

There is also evidence of bias contagion among human toddlers and adults. For example, observation of nonverbal bias against Black people produced intergroup bias among Italian toddlers in one study but observation of verbal bias did not exert this same influence on the toddlers (Castelli, de Dea, & Nesdale, 2008). Adults too can become biased following exposure to nonverbal bias and this social influence seems to occur absent conscious awareness. In one set of studies (Weisbuch et al., 2009), for example, American adults observed a series of brief and silent video clips in which White actors interacted with White and Black people. Dependent on experimental condition, the video clips depicted nonverbal bias against Black people or against White people. Participants exhibited greater bias against Black people after observing nonverbal bias against Black people. This effect occurred whether participants’ racial bias was measured via an implicit attitude test, affective priming, or self-report. Moreover, another group was unable to consciously identify the pattern of nonverbal bias across the video clips, suggesting that exposure was sufficient for social influence. Similar effects have been observed with female body size, such that exposure to nonverbal bias against heavy women increased American adults’ own bias against heavy people, even though nonverbal bias could not be consciously identified (Weisbuch & Ambady, 2009).

Bias contagion clearly occurs and in some cases, it might help to explain widespread patterns of biased behavior. Consider two follow-up studies to those described earlier: regional exposure to nonverbal bias was calculated by examining regional American television ratings for TV programs in which the rate of nonverbal bias was known (Weisbuch & Ambady, 2009; Weisbuch, Pauker, & Ambady, 2011). Regions that were exposed to greater pro-White and pro-slim nonverbal bias exhibited higher rates of anti-Black hate crimes and disordered eating behaviors, respectively. These results held even after controlling for pre-existing rates of hate crimes and disordered eating, after controlling for regional exposure to verbal bias, and after controlling for demographic factors. These studies do *not* suggest that exposure to nonverbal bias causes people to go out and commit hate crimes but rather that widespread exposure to nonverbal bias might contribute to cultural patterns of intergroup bias.

**Exposure to nonverbal bias: Pathways of transmission**—Exposure to nonverbal bias seems to infect observers with intergroup bias. There are several viable explanations for this effect. One possible explanation is evaluative conditioning, in which positive or negative unconditioned stimuli (US) are paired with conditioned stimuli (CS). After many pairings, evaluative ratings of the CS reflect the valence of the US with which they were paired (cf. de Houwer, Thomas, & Baeyens, 2001). As one example of how this reasoning might be applied to bias contagion, many pairings of negative nonverbal behavior (US) and Africans (CS), might cause observers to evaluate Africans the same way they evaluate negative nonverbal behavior (i.e., negatively). Yet there are several reasons that evaluative conditioning is an insufficient explanation for bias contagion. Most importantly, if nonverbal behavior is a US for perceivers, then the social group membership of the person expressing that nonverbal behavior should be a CS. In most paradigms, the expressive individual is

typically an ingroup member—consequently, exposure to nonverbal bias should cause perceivers to have negative affect toward *their own group*—as noted above, the opposite occurs.

A second possible explanation includes nonverbal mimicry. Perceivers unintentionally mimic others' nonverbal behavior (Chartrand & Bargh, 1999) and if nonverbal mimicry produces emotional feedback, then exposure to nonverbal bias against Africans, for example, might lead perceivers to directly experience negative affect toward Africans. Yet this explanation has several limitations. First, exposure to nonverbal bias includes exposure to two people interacting with each other—perceivers could theoretically mimic both parties rather than just the one exhibiting bias. Second, in animal studies the observer animals often do not mimic or are unable to mimic the animals exhibiting nonverbal bias. Finally, even if observers only mimic ingroup members and such mimicry does influence observers' own affect, it is unclear that (a) observers' would associate their affect with what they observe (e.g., Centerbar & Clore, 2006), (b) how or why observers' would associate their affect with the outgroup partner of the interaction (versus the ingroup member), and (c) how or why this associated affect would generalize to the social category (e.g., Black) rather than just the exemplar in the video.

In what follows, we detail an account of bias transmission that does not suffer from any of these problems. We detail three elements of the transmission process: implicit learning, informational influence, and normative influence. In particular, we describe how and when exposure to nonverbal bias should and should not lead perceivers to adopt a psychological bias.

**Implicit learning in bias contagion:** We contend that people effortlessly track and represent others' affective responses to social groups through implicit learning. From research in countries across the globe, it is clear that human observers can track both nonverbal behavior and social identity in the absence of conscious awareness, effort, and intention (e.g., Dimberg, Thunberg, & Elmehed, 2000; Fazio et al., 1995; Gilbert & Krull, 1988; Mason, Cloutier, & Macrae, 2006; Murphy & Zajonc, 1995; Sato & Yoshikawa, 2006; Tiedens & Fragale, 2003). Tracking of both nonverbal behavior and social identity may, through implicit learning, cause observers to develop expectations for others' responses to specific social groups. Implicit learning has been defined in as many as 11 different ways (Frensch, 1998), however recent accounts characterize it with several requirements. **Implicit learning** occurs when exposure to a regularly-occurring but complex pattern leads people to unintentionally gain procedural and inarticulable knowledge about that pattern (Cleeremans & Dienes, 2008). A final requirement is that people lack metacognition for the learning process (how they learned).

Implicit learning seems like an appropriate model for what happens when people are exposed to nonverbal bias. First, implicit learning typically operates with respect to complex environmental patterns and nonverbal bias actually constitutes a fairly complex surface pattern. A wide variety of nonverbal behaviors convey affect and even people who share group membership always look different from each other. Hence, affect and social group membership are both expressed in a variety of ways and perceivers must extract both elements and connect them to each other in order to extract nonverbal bias from a noisy social perceptual array. This procedure can be contrasted with a simple conditioning paradigm in which a word like "fear" is paired with a word like "Latino"—in this case, both affect and social group are givens thus greatly simplifying the perceptual pattern. Yet in the cases of bias contagion reviewed above, deer mice, monkeys, human toddlers, and human adults were presented with a naturally occurring but perceptually-complex array that included conspecific nonverbal behaviors, unique members of a group (or species), and

many other visual cues. Thus, as in typical implicit learning paradigms, social perceivers are presented with a complex perceptual pattern.

Second, implicit learning is often unintentional and in none of the bias contagion studies did perceivers intend to learn covariation between nonverbal behavior and social group membership. Third, the knowledge gained via implicit learning is typically difficult or impossible to verbalize and people who were exposed to a pattern of nonverbal bias in the above examples were unable to verbalize the pattern when asked (Weisbuch & Ambady, 2009; Weisbuch et al., 2009). Finally, implicit learning changes procedural memory and exposure to nonverbal bias seems to guide processing procedures—perceivers regard novel members of social groups as more or less pleasant depending on the pattern of nonverbal bias to which they have been exposed. Bias contagion thus satisfies requirements for implicit learning.

We propose that implicit learning is an important foundation for bias contagion. Specifically, and consistent with prior work, perceivers' unintentionally process the nonverbal behaviors and social identities of the people they encounter (e.g., Fazio et al., 1995; Murphy & Zajonc, 1993). In so doing, perceivers learn that certain groups evoke positive or negative responses from certain other groups (i.e., the social identities of both parties are processed). Consistent with implicit learning, the knowledge that is gained is procedural or tacit—subsequent exposure to targeted group members leads perceivers to anticipate others' positive or negative responses to those individuals.

Of course, this account cannot be the whole story of bias contagion. Specifically, we have argued that through implicit learning observers come to expect other people to respond negatively (or positively) toward certain social groups. However, implicit learning stops short of explaining how those observers develop their own positive or negative responses to these groups—this gap is bridged via informational and normative social influence.

**Informational and normative influence in bias contagion:** Once observers have gained expectations for how other people respond to certain social groups, standard informational and normative social influence processes may take over. In **informational influence**, observers change their attitudes about an object because they have learned something about its properties from observing how others respond to it. Bias contagion can be a form of informational influence in which observers change their attitudes about a social group because they have learned something about its positive/negative properties from others' nonverbal bias. Hence, through implicit learning perceivers may expect others to respond negatively toward a social group and for the uninformed perceiver, this expectation may be educational as to the properties of that social group (i.e., safe or dangerous). Observers who are already certain about the properties of social groups may not be (informationally) influenced by others' nonverbal responses.

**Normative influence**, however, can occur even when individuals are certain about the properties of an object. This type of influence occurs because observers want to align their responses with others to achieve affiliation with those others. Hence, an individual may be certain that a social group is quite pleasant but upon learning that other people dislike this social group, this individual may shift attitudes (cf. Asch, 1956). These sorts of effects occur among Americans and Europeans but are especially powerful for citizens of more collectivistic countries, such as those in the Far East and Latin America (Bond & Smith, 1996). And unlike informational influence, normative influence occurs even when people are knowledgeable about an attitude object.

**Pathways of transmission: Moderators:** Each pathway of transmission is contingent on several pre-existing conditions and can therefore be disrupted absent those preconditions. We present these moderators as precursors to social and policy interventions described further below.

**Implicit learning moderators:** One precondition of implicit learning is inexperience. Just as each new case in a correlational study exerts less influence as sample size increases, each new case of intergroup interaction exerts less influence on observers as they are exposed to more and more intergroup interactions. Indeed, in implicit learning the weight of each learning trial should be inversely proportional to the number of trials that have previously occurred. As applied to bias contagion, any intergroup encounter that is observed will have an impact on perceivers that is inversely proportional to the number of intergroup encounters previously observed.

A second precondition in implicit learning is a lack of attention toward the learning process. Implicit learning generates procedural knowledge, which, in turn, influences how observers respond to incoming stimuli. Ironically, the generation and influence of procedural knowledge is disrupted when observers turn their explicit attention to this knowledge (Baumeister, 1984; Beilock & Carr, 2001; Green & Flowers, 1991; Reber, 1976; Wulf & Weigelt, 1997; see also, Wulf & Prinz, 2001).

**Moderators of informational and normative influence:** When the properties of an object are unambiguous to perceivers, informational influence should not occur. Others' fear of chairs, for example, would have little effect on perceivers already certain about the danger or safety of chairs. Similarly, others' negative responses to a group should have little effect on perceivers already certain about the positive or negative qualities of those groups. There must be ambiguity or uncertainty about a social group for perceivers to be influenced by nonverbal bias, at least via informational influence.

Normative influence, on the other hand, should not occur for observers who have no social needs or requirements. Of course, the need to affiliate with others has been regarded as a basic human need that can be traced to the evolutionary damage instilled by social exclusion (Baumeister & Leary, 1995). Most people are thereby likely to have at least some social needs. However, people do vary in the degree to which they currently feel that are included or "fit in" (Leary, Kelly, Cottrell, & Schreindorfer, 2001) and there is within-person variability as well (cf. Williams, 2007). To the extent that affiliative needs are currently unmet, people may align themselves with the beliefs of their social group, as demonstrated in one study involving participants from 14 countries (Williams, Cheung, & Choi, 2000). Consequently, bias contagion through normative influence should be especially likely for individuals with currently high belonging needs.

Normative influence seems to be somewhat limited to the ingroup (cf. Hogg & Turner, 1987). For example, all perceivers may encode that a Black person evoked negative responses *from a White person* but only White perceivers might adopt intergroup bias against Black people. In fact, there is some evidence that people seek to differentiate themselves from the attitudes of devalued outgroups (e.g., Turner, Hogg, Oakes, Reicher, & Wetherell, 1987) and may thus exhibit intergroup bias that is opposite to the nonverbal bias displayed by devalued outgroups. The key point, however, is that bias contagion *that occurs via normative influence* should be somewhat limited to the nonverbal bias of ingroup members.

**Pathways of transmission: Summary:** People are frequently exposed to nonverbal bias. Moreover, people seem to effortlessly adopt patterns of intergroup bias that are consistent

with the patterns of nonverbal bias to which they have been exposed. We outlined processes that might account for how exposure to nonverbal bias is translated to intergroup bias in observers. We argued that through implicit learning, observers' come to expect that certain social groups will evoke especially negative responses from other people. These expectations for others' responses to certain social groups can then influence observers' own responses to social groups in one of two ways: through informational influence or through normative influence.

We argued that key moderators of bias contagion include experience with intergroup encounters, explicit attention to nonverbal bias, uncertainty about social groups, need for affiliation, and social identity. In what follows we describe how these moderators can inform social and educational interventions aimed at reducing the transmission of intergroup bias.

## Bias Contagion: Social and Policy Interventions

There are of course a variety of reasons that intergroup bias remains an issue worldwide despite the precipitous decline of blatant one-on-one discrimination and self-reports of bias in many countries. One possibility is that the consistent anti-discrimination message delivered by lawmakers, celebrities, judges, media outlets, educators, and organizations has focused on deliberate, verbal, and explicit bias both in content and in form. The content of these messages has emphasized the importance of producing explicit egalitarian behavior and avoiding explicitly biased acts and comments. For example, the most prominent standard of discrimination applied under American law is *disparate treatment*. Legally defined, disparate treatment occurs when an individual is treated less favorably than others (e.g., is not hired for a job) because of race, color, religion, sex, or ethnic origin. A similar legal definition exists elsewhere in the world, as in the European Union's Directive 2000/43 and Directive 2000/78, which both address discrimination in the workplace, housing, healthcare, education, and public access. This legal definition belies the quite blatant requirements for disparate treatment—disparate treatment requires proof of a discriminatory motive, typically interpreted by courts as proof of conscious and explicit intent to discriminate (White & Krieger, 2001). Thus, the focus of messages conveyed by legal precedent and through other social mediums is explicit content—what is said or done quite blatantly—rather than their more subtle content and form.

We argue that these subtle messages fuel the endurance of intergroup bias. People are frequently exposed to subtle nonverbal bias and this exposure generates intergroup bias in observers. Thus, it is critical to design interventions that drive at the heart of this contagious process: expression of and exposure to nonverbal bias. The interventions we propose below follow directly from our model of bias contagion and concentrate on two ways to combat intergroup bias: (1) by reducing expression of nonverbal bias and (2) by changing exposure to and transmission of nonverbal bias (see Table 1 for a summary).

### Reducing Expression of Nonverbal Bias: Social and Policy Interventions

Similar to health interventions (e.g., Kleenex), which aim to stop people from leaving bodily remnants of disease, the interventions we suggest in this section are aimed at stopping people from leaving bodily remnants of intergroup bias—in other words, curtailing the expression of nonverbal bias.

**Directed nonverbal training**—Truly biased individuals often attempt to conceal intergroup bias (cf. Richeson & Shelton, 2007) only for it to be revealed in nonverbal behavior (Dovidio et al., 1997; Dovidio et al., 2002; Fazio et al., 1995; McConnell & Liebold, 2001). Less biased individuals often worry so much about appearing unbiased that

they too exhibit nonverbal bias (Apfelbaum et al., 2008). In both cases, individuals fail to effectively control their nonverbal behavior.

An effective intervention might simply train people to better control their nonverbal behavior so that when they want to appear unbiased they can do so. As difficult as it can be to control nonverbal behavior, when given instructions on controlling nonverbal cues, feedback on when they succeed or fail, and regular training sessions, individuals can successfully create a positive (nonverbal) impression (see Heijnsen, Liberman, & Kopelowicz, 2000; Wallace et al., 1980). In this sort of training, “microbehaviors” (e.g., individual nonverbal behaviors) are organized into a hierarchy and participants are shown how and when to control each individual behavior, starting at the bottom of the hierarchy. Thus, individuals learn to sequentially control a given nonverbal behavior and gradually combine control of these individual behaviors into more complex responses. Training proceeds with basic learning principles such as shaping, modeling, rehearsal, reinforcement, and so on.

There is evidence that this sort of training can have positive interpersonal consequences. Social skills programs that incorporate nonverbal training have strongly positive effects on social adjustment, on others’ positive impressions, and on individual nonverbal behaviors (Dilk & Bond, 1996). The effectiveness of this sort of intervention has been demonstrated in many countries, for example Canada, China, and Australia (see Heijnsen et al., 2000). The results of social skills training programs are thus encouraging and it seems reasonable that the portion of these programs devoted to nonverbal control could be effective in reducing nonverbal bias. Truly-biased individuals might improve their ability to conceal their bias and truly-unbiased individuals might improve their ability to convey the positive impression they wish to convey during intergroup interaction. Notably, this intervention does not include reference to group membership and is not intended to alter *motivation* but rather *ability* to reduce nonverbal bias.

The extended and repeated training necessary to institute this particular intervention would be an obstacle. Yet this sort of time-intensive program is not unheard of: cooperative learning, perhaps the most successful school-based intervention for prejudice reduction (Paluck & Green, 2009), requires teachers to transform their classrooms or to include teaching “modules” that focus on cooperative learning. Clearly, these changes involve a great deal of time and effort, but like nonverbal training the purpose of cooperative learning extends beyond prejudice reduction to other positive outcomes (Roseth, Johnson, & Johnson, 2008). So a time intensive intervention like nonverbal training does not seem unfeasible given the broad return on investment (e.g., multiple positive outcomes).

**Perception-action training**—In the moment, nonverbal behavior can be difficult to consciously control. Moreover, the international scope of intergroup bias suggests that interventions may be most reliable when they rely on low-level mechanisms likely to be culturally-robust. Thus, interventions might be especially reliable to the extent that they eliminate the need for conscious control. One way to do this is to simply create associations between exposure to outgroups and observers’ positive nonverbal behavior. Consequently, exposure to outgroups might automatically evoke positive nonverbal behavior. A recent study has demonstrated that this type of training can reduce interracial bias. Repeated approach-movement responses to Black faces caused Canadian observers to later sit closer to or lean-in towards their Black interaction partners (Kawakami, Phillips, Steele, & Dovidio, 2007). These findings suggest that training people to complete some nonverbal behavior, such as approach-movements toward a Black person, can reduce one component of nonverbal bias (interpersonal distance). It remains an open question as to whether this particular type of training would reduce nonverbal bias in general.

To capture the multiple channels in which nonverbal bias is expressed, an effective intervention might incorporate perception-action training across several channels. For example, White people in North America and Europe often lack eye contact with their Black interaction partners (Dovidio et al., 1997; Hofmann et al., 2008) and such averted gaze is interpreted as dislike (e.g., Burgoon, Coker, & Coker, 1986). To facilitate intergroup eye contact, a dot-probe task could be modified to train White people to look at the eye region of Black people or other stigmatized groups. Indeed, tasks of this type have been successful in training people to look at positive or negative stimuli (Wadlinger & Isaacowitz, 2008, 2011). Hence, participants would quickly identify a dot that immediately followed a stimulus—the dot could replace the eye region of Black faces 80% of the time but replace the eye region of White faces only 20% of the time, for example. Such training might provide a relatively effortless means of increasing intergroup eye contact. Other possibilities include unobtrusively manipulating observers' facial expression or posture while they look at pictures of different groups. The goal of these interventions is to train muscles to respond to certain groups, so that observers eventually fail to exhibit nonverbal bias.

This type of individual-level training would require multiple sessions or phases. For that reason, the ideal implementation of such training is either in the classroom or the organization. It would require that students or employees be granted time on a weekly schedule for completing this perceptual training. The only required equipment is one or more up-to-date computers, inexpensive experimental software, and joysticks. A teacher or human resources liaison would have to be responsible for implementing the instrument and tracking progress. Finally, it is likely that people would require external motivation; supervisors might therefore introduce prizes for the highest levels of perceptual performance.

**Political-correctness norms**—We have argued that political correctness norms play an important role in nonverbal bias. They increase fear of appearing biased, consumption of self-regulatory resources, and misguided attempts at nonverbal control. Hence, one possibility for reducing nonverbal bias is to change the content of politically-correct norms. Specifically, multicultural norms emphasize social equality through the recognition and celebration of each social identity (Richeson & Nussbaum, 2003; Takaki, 1993; Verkuyten, 2005). Educational interventions that teach multiculturalism rather than colorblindness might help politically correct individuals regain self-regulatory resources during intergroup interactions, since they would no longer need to suppress statements about race, age, or weight. Moreover, multiculturalism encourages an interest in other groups which might manifest engaging nonverbal behaviors such as closer distance, forward lean, and eye contact— individuals who want to appear unbiased would likely adopt these positive nonverbal behaviors during intergroup interaction.

There is evidence that even brief interventions that teach a multicultural approach yield more pleasant intergroup interaction than do interventions emphasizing a colorblind approach. For example, in one study with White and Aboriginal Canadian participants, simple prompts to encourage both majority and minority group members to adopt a multicultural approach led members of both groups to exhibit “interest” oriented explicit behavior whereas prompts encouraging a colorblind approach led to more prevention-focused behavior, including explicitly communicated negative affect (Vorauer, Gagnon, & Sasaki, 2009). Similar results have been observed with Turkish and Dutch samples, which adopt more positive outgroup attitudes following multicultural priming (Verkuyten, 2005).

Yet although broad educational programs aimed toward multiculturalism often have a salubrious impact on intergroup bias (see Stephan, Renfro, & Stephan, 2004) many studies have also indicated a negative impact on intergroup bias (see Rosenthal & Levy, 2010).

Consequently, a more modest goal might be to implement narrow multicultural interventions that simply emphasize learning about other groups during intergroup interaction (e.g., Goff, Steele, & Davies, 2008; Vorauer et al., 2009). Such interventions might not always impact intergroup bias but for reasons reviewed above, they should positively impact nonverbal bias.

**Summary: Social and policy interventions for reducing expression of nonverbal bias**—We have presented three interventions for reducing the expression of nonverbal bias. Two interventions build on programs already implemented in classrooms and the third intervention builds on an empirically-validated method of reducing nonverbal bias. These are three examples that focus strictly on changing nonverbal bias rather than on changing underlying intergroup bias. Specifically, we highlighted interventions that might reduce nonverbal bias among people who do exhibit intergroup bias as well as those who do not.

### Reducing the Transmission of Bias: Social and Policy Interventions

The adoption of intergroup bias typically occurs given the necessary and sufficient condition of exposure to nonverbal bias. But just as certain people are more or less resistant to specific contagious diseases, certain people are also more or less resistant to bias contagion. Earlier we outlined several moderators of bias contagion likely to capture these individual differences. In this section, we build on our knowledge of those moderators to generate proposals for social and policy interventions.

**Interfering with implicit learning: Exposure training**—As noted earlier, the impact of exposure to an intergroup encounter should be inversely proportional to the number of intergroup encounters previously witnessed by a perceiver. Interventions that expose people to a large number of unbiased intergroup interactions should be successful in reducing bias contagion. Such interventions are likely to be especially effective with younger populations who conceivably have a lower base-rate of intergroup encounters. Consequently, this sort of intervention could be achieved by generating unbiased intergroup interactions (or interactions depicting a counter-normative pattern) and exposing people to these sequences in school-based educational programs.

Even for people who have been exposed to a culturally-prevalent pattern of nonverbal bias (e.g., pro-White) throughout their lives, there is evidence that exposure to sixty 10-second sequences of the opposite nonverbal bias pattern (e.g., pro-Black) can temporarily reduce intergroup bias (Weisbuch & Ambady, 2009; Weisbuch et al., 2009). Consequently, 10 minutes of exposure to an intensely counter-normative pattern of nonverbal bias might produce long-term changes to intergroup bias if an intervention can ensure such exposure occurs on a regular basis. Presentation of such a counter-normative pattern could be accomplished in an unobtrusive manner. For example, the observers' task could be to identify certain features in video clips and those performing the best could receive rewards.

This intervention would require no training on the part of teachers or supervisors. Exposure sequences could simply be played for observers through a computer or data player (e.g., DVD, Blu-Ray). Consequently, this sort of school-based intervention would require few resources and potentially little time—especially if exposure could occur in a group setting. As illustrated with similar research on Italian children (Castelli et al., 2008), this type of intervention might be especially effective for pre-adolescent children.

**Interfering with implicit learning: Explicit attention**—As noted above, explicit attention to nonverbal bias should interfere with observers' tendency to gain tacit



expectations that certain groups will evoke negative responses. Of course, explicitly attending to nonverbal bias would require that people gain *explicit* knowledge that certain groups evoke negative responses. The primary benefit of this intervention would be that observers could explicitly counter-argue others' nonverbal responses, just as they counter-argue verbal slurs. If nonverbal bias becomes common knowledge people can *intentionally* treat it as prejudice and resist conforming.

To direct observers' attention to nonverbal bias, interventions could simply alert people to the presence and undesirable influence of nonverbal bias. This sort of information should be sufficient for motivating people to attend to and correct for nonverbal bias—people indeed prefer to resist subtle influences (for a review, see Wilson & Brekke, 1994). Existing diversity curricula in schools and organizations could simply include added information about the existence and influence of nonverbal bias. From classroom lectures to textbooks, a few sentences about nonverbal bias should be sufficient to clue people into this unwanted influence. In fact, research conducted across the world has demonstrated that just a few sentences of this type can reverse or eliminate otherwise subtle social influences (e.g., Golding, Fowler, Long, & Latta, 1990; Strack, Schwarz, Bless, Kubler, & Wanke, 1993). The time required for this intervention would thus be minimal—a few minutes of time from teachers and human resources administrators—and should be applicable in most countries. PSAs and diversity programs with media components could also highlight the influence of nonverbal bias in addition to verbal bias. Some widely used diversity programs, like the A CLASSROOM OF DIFFERENCE™ Anti-Bias Study Guide (Anti-Defamation League, 2011), include a unit on examining bias in the media. This unit could easily incorporate information on nonverbal bias in the media.

**Interfering with informational influence: Education about other groups—**To reduce bias contagion via informational influence, educational interventions can simply reduce uncertainty about social groups. The content of this type of intervention should focus on the social group properties most relevant to intergroup bias. Specifically, the intervention should focus on properties of groups likely to cause those groups to seem likeable or dangerous. For example, an educational program might focus on evidence that Turkish Germans are not more violent than White Germans, evidence that gay people do not carry infectious diseases than others, and the high percentage of Muslim people who are not terrorists. Regardless of exact curriculum, there would have to be an emphasis on certainty. Thus, it would be important for highly credible and attractive sources to provide people with easy to understand facts that support a strong argument (Petty & Wegener, 1998). As with an intervention focused on multicultural principles, this type of educational program could be seamlessly integrated with existing educational programs and PSAs to reduce uncertainty about other social groups.

**Interfering with normative influence: A therapeutic approach—**The need for affiliation puts people at risk for normative influence and hence bias contagion. But beyond their susceptibility to social influence, people who have been ostracized, excluded, or are simply lonely are at risk for depression and anxiety, cardiovascular disturbances, increased aggression, and suicide (Cacioppo, Hughes, Waite, Hawkley, & Thisted, 2006; Hawkley, Burleson, Bernston, & Cacioppo, 2003; Hoyle & Crawford, 1994; Twenge, Baumeister, Tice, & Stucke, 2001; cf. Baumeister & Leary, 1995). Accordingly, a variety of psychotherapeutic interventions have been established for helping individuals reduce their sense of isolation or need for affiliation (e.g., Forsyth, 1991; Osterman, 2000). If one key to reducing bias contagion is to improve individuals' sense of belonging, there are thus established educational and social resources that can help in this reduction, including several impactful social-psychological interventions implemented in the U.S. that do not require

large-scale curricular changes (Cohen, Garcia, Apfel & Master, 2006; Walton & Cohen, 2007; Walton & Cohen, in press).

A *reduction* in bias contagion would simply require an *increase* in the degree to which these resources are utilized. This might be accomplished through (a) further sponsorship of early education programs that address students' social belonging needs, (b) creation of curricular standards in early education programs for meeting students' social belonging needs, and/or (c) a simple social-psychological intervention targeted at buttressing social belonging at a key age.

**Interfering with normative influence: Structuring PSAs**—The role of social identity in normative influence provides clear guidance for prejudice-reduction PSAs aimed toward reducing bias contagion. Counter-normative nonverbal bias should be displayed by prototypical members of the targeted ingroup—hence, if seeking a reduction in race bias among White Australian perceivers, then White Australian spokespersons should direct more positive nonverbal behavior toward Aboriginal than White individuals. Conversely, if seeking a reduction in race bias among Australian Aboriginal perceivers, then Aboriginal spokespersons should direct more positive nonverbal behavior toward White than Aboriginal individuals.

**Summary: Social and policy interventions for reducing transmission of bias**—

We have suggested that prior encounters with nonverbal bias are likely to modulate the impact of future encounters with nonverbal bias. And we have argued that explicit knowledge of nonverbal bias may interfere with bias contagion. These ideas implicate the disruption of implicit learning yet there are methods for reducing bias contagion that do not depend on principles of implicit learning. For example, we have proposed that informational influence plays a role in bias contagion. Consequently, explicit education should be protective against bias contagion to the extent that it includes unambiguous and convincing information about the properties of outgroups. Of course, even knowledgeable people want to “fit in”. For this reason, education about social groups may be insufficient for preventing bias contagion that occurs through normative influence. However, educational and therapeutic programs that encourage affiliation should help people resist such normative influence. In short, we proposed a number of interventions that might reasonably reduce or prevent bias contagion.

## From the Past to the Future: Social Policy and Bias Contagion

The most common anti-discrimination message, driven by law and communicated through educational, media, and organizational outlets suggests that it is critical for people to monitor their explicit behavior and action but implies that it is unimportant to monitor nonverbal behavior. Although it is not entirely fair to lump all anti-discrimination laws, educational curricula, media commentary, and public service announcements together, it is difficult to find an example that endorses the eradication of nonverbal bias in addition to more blatant expressions of bias. This emphasis is consistent with a goal of reducing the blatant one-on-one discrimination that was once quite common. And it is clear that this emphasis has, for many countries, played a vital role in reducing explicit one-on-one discrimination. From laws requiring racial integration to classroom education about oppression to public service announcements and more, changes in public policy have effectively reduced explicit discrimination at the individual level. Although there remains room for considerable improvement in many parts of the world, an intercontinental focus on reducing explicit discrimination has achieved success in many regions.

It is therefore quite unfortunate that the anti-discrimination emphasis on explicit acts and words likely helps to fuel bias contagion. For example, people who *are* psychologically biased may regulate their explicit behavior but not their nonverbal biases (Dovidio et al., 1997; Fazio et al., 1995; McConnell & Liebold, 2001) and people who *are not* biased may be so anxious about regulating their explicit behavior that they exhibit nonverbal bias (Apfelbaum et al., 2008). The net result is more, rather than less, nonverbal bias. Moreover, the emphasis on explicit acts and words likely prompts observers to attend to individual acts of explicit discrimination and correct for the impact of those acts by tagging them as undesirable or using some other correction tactic (Wegener & Petty, 1997; Wilson & Brekke, 1994)—even children seem to be protected against the impact of others' explicitly expressed biases (Castelli et al., 2008). Yet observers have not been clued in to nonverbal bias and therefore may not try to correct for it or recognize it as an act of discrimination. Hence, observers may not only be exposed to more nonverbal bias than they would have in the absence of traditional anti-discrimination messages but observers also remain uninformed about this bias and its influence—making them unprotected targets.

There is thus a paradox with respect to the impact of traditional anti-discrimination messages that focus on explicit discrimination but not nonverbal bias. On the one hand, these messages have been effective in reducing truly egregious expressions of intergroup bias, such as violence and verbal slurs. They have created a new social norm that explicitly denounces intergroup bias and that most people endorse (e.g., Crandall et al., 2003). On the other hand, these traditional messages have not effectively combated bias contagion, nor were they intended to. In fact, these messages may have facilitated the prevalence of bias contagion.

This paradox represents a thorny issue for a few reasons. First, single acts of nonverbal bias can hardly be compared to the violent and demeaning acts of discrimination that characterized intergroup bias in times past. Yet bias contagion remains a contributor to the same intergroup biases that help to propel broader patterns of discrimination (Dovidio & Gaertner, 2000). Second, legislating nonverbal behavior may impinge on individual human rights—the prohibition of say, negative facial expressions, toward members of other races would be uncannily reminiscent of the future envisioned by Orson Welles in his classic *1984*. Nonetheless, it is possible to use our model of bias contagion as the basis for generating interventions against bias contagion that do not impinge on human rights and that are not likely to undermine efforts aimed at eliminating explicit discrimination. Educational interventions, media-based interventions, and even workplace interventions could short-circuit bias contagion and in our opinion, greatly reduce contemporary intergroup bias.

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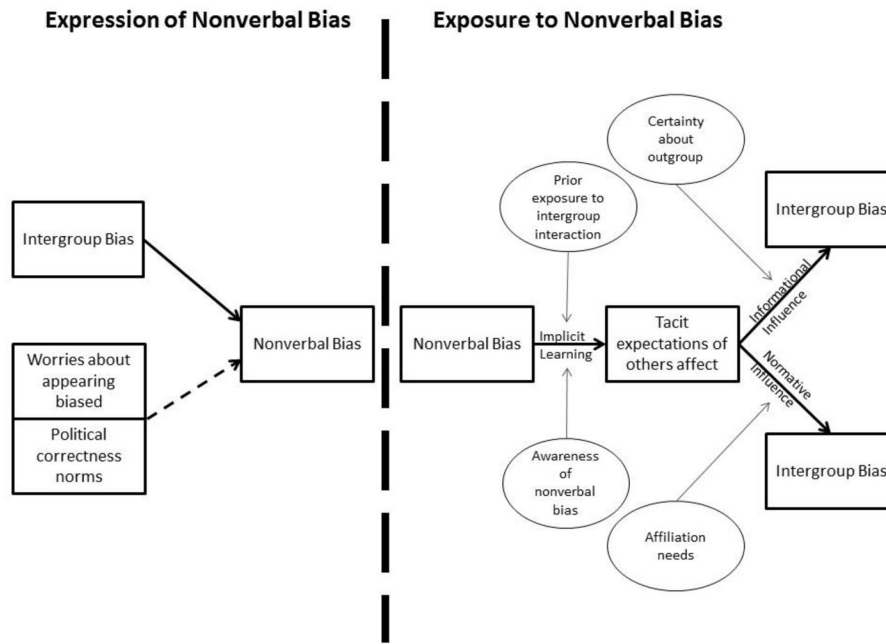
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**Figure 1.** The bias contagion model. The left side of the figure illustrates Stage 1 of the model, the expression of nonverbal bias. Nonverbal bias can either occur as a veridical index of the expresser’s intergroup bias (*direct causation*) or because of worries about and strategies for appearing unbiased (*indirect causation*). The right side of the figure illustrates Stage 2 of the model, exposure to nonverbal bias. Through implicit learning, exposure to others’ nonverbal biases might lead observers to develop a tacit expectation of others’ affective responses. This tacit expectation may then lead to intergroup bias through normative or informational influence. Stage 2 also includes several important moderators that can interfere with implicit learning, normative influence, and/or informational influence.

**Table 1**

Proposed Interventions by Model Stage, Pathway Addressed and Moderator

| Description                 | Model Stage  | Moderator          | Pathway Addressed           | Intervention Type     |
|-----------------------------|--------------|--------------------|-----------------------------|-----------------------|
| Directed nonverbal training | Expression   | -                  | Direct & Indirect Causation | Structured Training   |
| Perception-action training  | Expression   | -                  | Direct & Indirect Causation | Structured Training   |
| Changes to PC norms         | Expression   | -                  | Direct & Indirect Causation | Education             |
| Exposure training           | Transmission | Prior Exposure     | Implicit Learning           | Structured Training   |
| Conscious correction        | Transmission | Explicit Awareness | Implicit Learning           | Education             |
| Education about groups      | Transmission | Uncertainty        | Informational Influence     | Education             |
| Satiating affiliation needs | Transmission | Affiliation Needs  | Normative Influence         | Organized Interaction |
| Structuring PSA's           | Transmission | Social Identity    | Normative Influence         | Media Intervention    |

*Note.* Please see text for elaboration of each type of intervention. Each intervention is aimed toward a particular stage and pathway in our model, and interventions for the transmission stage are built on moderators described in the model.